

EAST BOULDER FUELS REDUCTION PROJECT

Decision Notice & FONSI Response to EA Comments

**Gallatin National Forest
Big Timber Ranger District
Sweet Grass County, Montana**

June 2010

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USDA Forest Service

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I. Introduction

This Decision Notice documents my decision and the “finding of no significant impact” (FONSI) concerning the implementation of a hazardous fuels reduction project on National Forest System lands in the East Boulder River Corridor drainage of the Big Timber Ranger District. The Project Area has been identified as a wildland/urban interface (WUI). The East Boulder community is listed as a priority for treatment in the September 2008, Sweet Grass County Community Wildfire Protection Plan (CWPP). In addition, the East Boulder Fuels Reduction Project is identified on the list of proposed vegetation/fuel management projects on page 53 of the CWPP.

The project area is located in the Absaroka Mountain Range in the southern portion of the Big Timber Ranger District in Sweet Grass County, Montana and lies adjacent to the North Absaroka Inventoried Roadless Area, which includes the East Boulder Unit. The East Boulder Road #205 branches off of the Main Boulder highway approximately 20 miles south and west of Big Timber and is a highly maintained gravel road that follows the East Boulder River from its confluence with the Main Boulder River to the Stillwater Mining Corporation’s East Boulder Mine complex at its terminus. Approximately 6-7 miles of this road are adjacent to private lands up to the forest boundary, and an additional 5-6 miles of the road extend from the forest boundary to the mine with areas of private ownership interspersed (See Vicinity Map 1). The approximately 4,000 acre project area, which constitutes the roaded portions of the East Boulder River corridor, is heavily utilized for mining operations and to a lesser degree by recreational users.

Treatment areas identified in the East Boulder Fuels Reduction Project selected alternative (Alternative 2) are located along the one-way in/out East Boulder Road #205 and/or lie adjacent to the East Boulder Mine site. All units are located inside the roaded portion of the drainage with no treatment activities proposed in the adjacent inventoried roadless area (IRA). Fuel management treatments will begin at the Forest boundary, just north of the East Boulder Campground, and extend for approximately six miles east-southeast to the Dry Fork area, which is adjacent to the East Boulder Mine. Treatments along the lower portion of the Lewis Gulch Road will begin at the East Boulder Mine and extend into the northeast quarter of Section 10 (Refer to Map 3). The East Boulder River corridor is located in Sweet Grass County with proposed treatment units located in T.3.S, R.13.E, Sections 29, 32, & 33 and T.4.S, R.13.E, Sections 2, 3, 4, 5, 10, & 11.

This project is part of the Gallatin Forest’s ongoing emphasis on implementing projects that increase firefighter and public safety in the event of a severe wildfire and is part of a broader program to implement the National Fire Plan (USDA Forest Service, 2000). Some of the important partners in the development of this project include private landowners and stakeholders, special interest groups, Boulder River Watershed Group, Sweet Grass County, Sweet Grass County Rural Fire Department, Stillwater Mining Corporation, Northern Rocky Mountain Resource Conservation and Development, and the Department of National Resources and Conservation.

II. Decision

After careful consideration of the impacts associated with the three alternatives analyzed in the East Boulder Fuels Reduction Project Environmental Assessment (EA), March 2010, I have selected Alternative 2 (Corridor Units only). Upon comparison of the benefits and risks associated to key resource issues, I chose to implement Alternative 2 because I felt that the risks of potentially spreading noxious weeds into upper Lewis Gulch (the additional units encompassing Alternative 3), where there are currently no known infestations, outweighed the additional benefits of treating hazardous fuels in this area. Treatment of the five Upper Lewis Gulch units was intended to provide a deflecting mechanism, were a large fire to approach the area from the south. Although modeling displayed that the proposed fuel treatments would decrease the time of arrival to existing infrastructure by up to two hours, the odds of a fire starting in this vicinity and spreading to the north are relatively small (See Map 9-Fire History Map). Due to the normally heavy snowload and the condition of the Lewis Gulch Road in winter, the majority of the harvest treatments, log hauling, and construction of temporary roads associated with these five units would occur when the area was neither frozen or snow covered, resulting in additional soil disturbance that could provide a seed bed for noxious weeds to spread into currently un-infested areas.

Consideration of Canada lynx habitat needs also played into my decision, in that Alternative 2 will treat roughly half the acreage of multi-storied snowshoe hare habitat as proposed with Alternative 3. The additional treatment units included in Alternative 3 are at higher elevations, in cooler, moister habitat types preferred by lynx. The Upper Lewis Gulch units are also in closer proximity to roadless and wilderness habitats that support some of the highest quality lynx habitat in the East Boulder LAU. Simply put, as one of the respondents pointed out, Alternative 3 does not provide enough additional benefits that address the purpose and need for the project to warrant the additional treatment acres of multi-storied snowshoe hare habitat in closer proximity to higher quality lynx habitat.

Alternative 2 (selected alternative) addresses all elements of the purpose and need, considering the areas of high fuel hazard, high risk of human-caused ignition, and high social values. My decision emphasizes treating those stands where thinning of conifers and removal of ladder fuels will improve public, private resident, and East Boulder Mine employee evacuation and firefighter safety, were a large fire event to occur in the drainage.

Map M-3 displays the units of treatment associated with the selected alternative (Corridor Units Only). Alternative 2 includes vegetation treatments on a maximum of 650 acres in twenty-five separate units. Stand density reduction utilizing tractor harvesting equipment will occur on a maximum of 490 acres on slopes up to 35%, harvesting both large and small diameter trees. A maximum of 20 acres of stand density reduction on slopes >35% will involve skyline cable harvest, and up to 140 acres will have hand-treatments (removal of ladder fuels, limbing of large diameter trees, and thinning of small diameter trees). Hand-treatments will occur in sensitive areas, areas where trees are too small for commercial harvest operations, and/or in areas that are not conducive to either tractor or skyline harvest methods.

Leave tree spacing will be irregular and somewhat variable between units. Mechanically treated units in MA11 will retain 15-20% of each unit's acreage in untreated clumps to protect big game winter range habitat and address visual concerns of partial retention. Prescriptions will vary between adjacent units to disrupt the continuity of fuel conditions among stands. Very small or narrow units will not include clump retention. The East Boulder River as well as secondary streams will be buffered (uncut strips along streams) to minimize any sediment or fishery concerns and provide wildlife corridors. Mechanized equipment will not be allowed within Streamside Management Zones or wet areas in conformance with the State of Montana Best Management Practices (BMP's).

III. Background

The East Boulder Road, the only road servicing the corridor, is a county road that is plowed year round and maintained by Sweet Grass County. The project area contains a mixture of privately owned and National Forest System lands with approximately 5 year-round private residences, as well as several cabins and out-buildings, one Forest Service campground, and two Forest Service trailheads.

In addition to the rural residences and recreation facilities, at the end of the East Boulder Road is the East Boulder Mine, a division of the Stillwater Mining Corporation, which is the largest private employer in the State of Montana. Because of recent downsizing due to market and economic conditions, there are currently approximately 300 employees stationed at the East Boulder Mine. Previous numbers of employees at the mine were significantly higher, which could be the case in future years depending on market conditions. Paralleling the East Boulder Road is a high capacity transmission line (Owned by Park Electric Company) that provides a critical electrical source for mine operations. These operations range from everyday power usage in office settings, to air compressors and scrubbers that provide a breathable air source several miles below the surface of the ground for the actual mining operations.

The East Boulder Road is heavily traveled year round by mine employees, who are bused in and out of the drainage, and contractor delivery services to the mine. Private residents use the road to access their homes and property. There is also light usage in the summer months and moderate usage in the fall/winter months by recreationists and hunters. Because the East Boulder Road provides the only access into the drainage, emergency evacuation of the public from this corridor, in the event of a severe wildfire, would be difficult due to the proximity of heavy fuel buildups adjacent to the road.

Vegetative types within the East Boulder corridor vary, with spruce and remnant aspen occurring in the moist canyon bottoms and a mixture of mainly Douglas-fir and lodgepole pine on the side slopes. The primary concern related to the current fire risk within the East Boulder project area is the vertical and horizontal continuity of fuels, including standing and downed woody fuels, as well as the smaller understory tree components. Natural successional stand development, in conjunction with years of successful fire suppression have resulted in greater tree densities, with higher fuel loadings, and a continuous horizontal fuel bed arrangement throughout the drainage. Stand 'densification' has also resulted in little or no space between the crowns of trees.

The area is also currently experiencing a mountain pine beetle epidemic, small patches of Douglas-fir beetle mortality, as well as infestations of spruce budworm. As insects move across the landscape and stands of trees become infested, red needles on standing dead trees become highly volatile and act as a catalyst for intense wildfire behavior until the needles are shed and decompose.

The East Boulder Corridor is prone to frequent high wind events with wind speeds of up to 35-40 miles per hour that sometimes persist for several hours, with dry thunderstorms, as well as Pacific Frontal Systems with their associated jet stream, often occurring during the summer and fall months, producing strong downdrafts through the corridor. Current stand conditions, when combined with the potential for high wind events, set the stage for an extreme crown fire situation.

IV. Purpose and Need for Action

The primary purpose and need for this project is to improve public and firefighter safety by reducing the probability and effects of human caused fire starts along the corridor and reducing the effects of wildfire entering into the WUI of the East Boulder River corridor. This will be accomplished by breaking up the vertical and horizontal continuity of fuels by thinning trees, and removing ladder fuels and vegetation in the treatment units. Reducing the continuous fuel loadings along the East Boulder corridor will improve public and firefighter safety, as well as the safety of employees at the East Boulder Mine, by lessening the speed and intensity, and altering the pattern of a potential wildfire, thereby gaining additional time to implement an effective emergency evacuation out of the corridor and to conduct other necessary safety measures.

Note: My decision (Alternative 2) includes vegetation treatments only on National Forest System (NFS) lands. Private landowners are responsible for fuels reduction and structure protection measures on privately owned property and are encouraged to implement these types of treatments.

V. Scope of the Decision

The Council of Environmental Quality (CEQ) regulations implementing NEPA define the “scope” of an action consisting of “...the range of actions, alternatives, and impacts to be considered”. To determine the scope, federal agencies shall consider three types of actions; (1) connected actions; which are two or more actions that are dependent on each other for their utility; (2) cumulative actions; which when viewed with other proposed actions may have cumulatively significant effects and therefore be analyzed together; and (3) similar actions; which when viewed with other reasonably foreseeable or proposed actions have similarities that provide a basis for evaluating their environmental consequences together. (40 CFR 1508.25).

The scope of the proposed vegetative treatment actions addressed in this Decision Notice are limited to stand density reduction and the reduction of fuel loadings on National Forest Land including:

- Thinning and/or harvest of medium and large diameter (>6" dbh) green conifers to meet unit by unit fuel reduction objectives
- Harvest of insect or disease damaged/killed conifers except where needed to meet snag retention requirements.
- Thinning of Post & Pole size conifers (4" to 6" dbh)
- Slashing of small diameter conifers
- Piling and removing and/or burning of downed woody materials and fuels resulting from treatment actions.
- Construction of up to 2.1 miles of low standard temporary roads to access treatment areas and the recontouring and rehabilitation of these roads following completion of harvest related activities.

Other actions that are within the scope of the project that will be completed are cleanup and maintenance of roads utilized for project related activities and ecosystem restoration activities such as weed monitoring and spraying.

VI. Detailed Description of the Decision

My decision is to implement Alternative 2. Alternative 2 was designed to address all elements of the purpose and need considering the areas of high fuel hazard, high risk of human-caused ignition, and high social values. Alternative 2 emphasizes treating those stands that are adjacent to the East Boulder Road, private property, and/or the East Boulder Mine site where thinning of conifers and removal of ladder fuels will improve public and firefighter safety. The majority of the units associated with Alternative 2 lie in Management Area (MA) 8 and MA 11, both of which include productive forest lands that are available for timber harvest. Some units have linear inclusions of MA 7 (riparian), and there are a few very small inclusions of MA 3 and MA 12, all of which allow for the harvest of wood products where adjacent to existing roads. Management area direction for these MAs is outlined in the Gallatin Forest Plan (pp. III-6 through III-39).

Map M-3 displays the units of treatment associated with Alternative 2 (Corridor Units Only) and includes vegetation treatments on a maximum of 650 acres in twenty-five separate units. Stand density reduction utilizing tractor harvesting equipment will occur on a maximum of 490 acres on slopes up to 35%, harvesting both large and small diameter trees. A maximum of 20 acres of stand density reduction on slopes >35% will involve skyline cable harvest, and approximately 140 acres will consist of hand-treatments (removal of ladder fuels, limbing of large diameter trees, and thinning of small diameter trees). Hand-treatments will occur in sensitive areas, areas where trees are too small for commercial harvest operations, and/or in areas that are not conducive to either tractor or skyline harvest methods.

Leave tree spacing will be irregular and somewhat variable between units. Mechanically treated units in MA11 will retain 15%-20% of the unit acres in untreated clumps to protect big game winter range habitat and address visual concerns of partial retention. Very small or narrow units will not include clump retention. The East Boulder River and secondary streams will be buffered

(uncut strips along streams) to provide wildlife corridors. These irregular stand structures will break the continuity of vertical and horizontal fuels in the project area. Prescriptions will vary between adjacent units to disrupt the continuity of fuel conditions among stands and will include:

Douglas-fir (DF) and mixed species dominated stands (>30% mixed)

MA11-Treatments will include a 40-60% canopy retention favoring DF then S to leave, irregular spacing with 13-15 feet between crowns. In addition, 15 to 20% of the unit acreage will be left in untreated irregular shaped clumps of approx. 1/3 acre in size. (Very small or linear units may not have clumps retained).

MA8-Treatments will include a 35-45% canopy retention favoring DF then S to leave, irregular spacing 13-15 ft between crowns. Clumps will not be retained in MA8 units. Most LP and AF will be removed.

LP dominated stands (>70% LP)

MA11-Treatments will include 40-50% canopy retention. Leave DF and S where available with 13-15 feet irregular spacing between crowns. Leave 15–20% of the unit acreage in untreated irregular shaped clumps 1/10 to 1/8 acre in size. There will be some open areas within these stands.

MA8-Treatments will include 20-40% canopy retention. DF and S will be left, where available, with 13-15 feet irregular spacing between crowns. Where no other species are available, LP will be left in small clumps 1/8 to 1/10 acre in size. There will be openings in these units.

Clumps- Clumps will be located within the units and at least 200 feet from the power line, wherever possible. Clumps will have irregular shapes and sizes. DF and mixed species clumps will be approximately 1/3 acre in size, LP clumps will be 1/10 to 1/8 acre in size. Retention clumps will be excluded from any type of treatment. Clumps should be placed on level benches where possible. Clumps should select for inherently heavier canopy cover with Douglas fir, subalpine fir, and spruce.

Skyline cable units- Will have corridors approximately every 150 feet.

Hand treatments–Thinning from below, ladder fuels and small diameter trees will be hand piled, piles will be burned, edges will be feathered to blend with adjacent stands. The objective is to break up continuous fuels and remove ladder fuels. Regeneration stands (20-30 year old) will only be thinned if they are immediately adjacent to the high voltage Park Electric power line. Thinning will only occur within 200 feet of the power line.

Small diameter trees and activity fuels- Will be slashed, piled, and burned, or otherwise removed unless they lie within the untreated retention clumps.

Downed Woody Debris- Approximately 15 tons/acre of downed woody debris per Gallatin Forest Plan direction will be left on site, where available. Large diameter pieces will be favored to leave.

Snags- Adhere to Forest Plan standards of leaving 30 snags per 10 acres greater than 18' and 10" DBH, where available. Wherever possible, snags will be retained within the untreated leave clumps for safety purposes. An additional 30 live snag replacement trees per 10 acres will be left in harvest units in either retention clumps or thinned areas. For Douglas-fir and subalpine fir sites on rocky or shallow soils designate 60 trees per 10 acres as replacement trees.

As a part of project layout, snags will be marked to leave and tallied by unit. No firewood cutting signs will be posted throughout the sale area to ensure that the snags will not be removed for firewood. If firewood cutting becomes a problem after these timber sale signs are removed (following completion of project activities), wildlife tree tags will be placed on snags that are visible and easily accessible from the East Boulder Road.

Rivers and streams- The East Boulder River will be buffered by a 15' no cut zone, with only up to 50% of the trees 8" diameter and greater slated for removal in the areas 15'-50' from the river. There will be no harvest on >35% slopes leading into the East Boulder River to protect water quality and aquatic habitat. No heavy equipment will be allowed in the streamside management zones. Tributary streams (Twin Creek, Lewis Creek, and Wright Creek) will have a 50' no cut buffer on either side of the streams to provide travel corridors for big game.

Seeps, springs, wallows- These areas will be buffered and included as part of the unit's 15-20% retention clumps.

Treatment descriptions for the individual units included in Alternative 2 are found in Table 1 below: Table 1 displays individual unit information. Design criteria and mitigation measures for the proposed treatments can be found on pp. 2-23 through 2-37 of the EA.

Table 1 – Alternative 2 (Corridor Units) Treatment Descriptions

Unit #	Acres	Logging System	MA	Roads Needed	Unit Treatment Type	Riparian Treatment Type	Season of Treatment
1	25	Tractor	11	390 ft temp. road construction 5 11 feet existing rd. maintenance	Retain 15-20% in irregular shaped clumps (approx. 1/3 acre in size), Irregular spacing of leave trees 13-15 ft. between crowns, Favor DF	NA	Winter

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Unit #	Acres	Logging System	MA	Roads Needed	Unit Treatment Type	Riparian Treatment Type	Season of Treatment
2	10	Hand Treatment	11	NA	Remove dead and dying trees, Remove ladder fuels except near campsites (cut, buck, & pile)	50 ft. no treatment buffer along East Boulder River (EBR)	Summer-Winter East Boulder Cmpgrd.
3	120	Tractor	11, 8	3794 ft temp road constructionF S, 1185 ft. temp. road PVT (PVT Access)	N ½, MA11 Retain 15-20% in irregular untreated clumps (approx. 1/3 acre), Irregular spacing leave trees 13-15 feet. between crowns, S1/2 (MA8) irregular spacing 13-15 ft between crowns, remove pockets of LP Favor DF	Small ponds in unit will be buffered as part of untreated clumps	Winter
3A	5	Hand Treatment	11	NA	Thin/remove small dbh (<8") trees approx. 13-15 ft. between crowns	NA	Summer-Winter
4	25	Hand Treatment	12	NA	Thin small dbh (<8") (cut, buck, & pile)	Minimum 15 ft. no cut along EBR; No treatment on steep slopes adjacent to EBR boundary to be located at top of the terrace	Summer-Winter

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Unit #	Acres	Logging System	MA	Roads Needed	Unit Treatment Type	Riparian Treatment Type	Season of Treatment
5	35	Tractor	11	1111 ft. temp road construction (may need stream crossing exemption for Wright Creek))	Retain 15-20% in untreated irregular clumps (approx 1/3 acre in size), Leave tree irregular spacing (13-15 ft) between crowns, Favor DF	Minimum 15 ft. no cut along EBR, No treatment steep slopes adjacent to EBR boundary located at top of the terrace, Maintain 50 ft buffer both sides of Wright Creek	Winter
5A	45	Tractor	11	704 ft. temp road construction	Retain 15-20% untreated clumps (approx 1/3 acre size), Leave tree irregular spacing (13-15 ft) between crowns, Favor DF& S, In LP areas leave only 1/8 to 1/10 acre size clumps	50 ft. no cut buffer either side of Wright Creek except adjacent to power line	Winter
6	10	Hand Treatment	12	NA	Thin/remove small trees <8" in diameter (cut, buck, & pile)	Leave tree clump located along Lewis Creek	Summer-Winter

Unit #	Acres	Logging System	MA	Roads Needed	Unit Treatment Type	Riparian Treatment Type	Season of Treatment
7	30	Tractor	11, 8	730 ft. temp road construction 24 ft. existing road maintenance	Retain 15-20% in untreated clumps (approx 1/3 acre in size), Leave tree irregular spacing (13-15 ft) between crowns, Favor DF	50 ft. no cut buffer either side of Twin Creek except adjacent to power line	Winter
7A	5	Tractor	11	NA	Irregular spacing 13-15 ft. between crowns Favor DF	NA	Winter
7B	1	Hand Treatment	11	NA	Thin small trees <8" dbh, Approx 13-15 ft. between crowns within 100' of powerline	50 ft. no cut buffer either side of Twin Creek	Summer-Winter
8	10	Hand Treatment	11	NA	Thin/remove small trees <8" dbh Approx 13-15 ft. between crowns Leave all DF except adjacent to power line	NA	Summer-Winter
8A	20	Hand Treatment	11	NA	Thin/remove small trees <8" dbh, Approx 13-15 ft. between crowns Leave all DF except adjacent to power line	NA	Summer-Winter

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Unit #	Acres	Logging System	MA	Roads Needed	Unit Treatment Type	Riparian Treatment Type	Season of Treatment
9	20	Tractor	11	423 ft. temp. road construction	Irregular spacing leaving 13-15 ft. between crowns Favor DF & S Remove LP, Remove all trees within 35' of power line	NW corner has a SMZ retention clump	Winter
9A	10	Tractor	8,12	97 ft. temp road construction 376 ft. existing road maintenance	Irregular spacing (13-15 ft) between crowns, Favor DF	50 ft. buffer of Lewis Creek	Winter
10	30	Tractor	8, 11	502 ft. temp. road construction	Retain 15-20% in untreated irregular clumps (approx 1/3 acre in size), Leave tree irregular spacing (13-15 ft) between crowns, Favor DF	NA	Winter
11	40	Tractor	8,12	608 ft. temp. road construction	Irregular spacing leaving 13-15 ft. between crowns Favor S and DF	Minimum 15 ft. no cut along EBR; No treatment on steep slopes adjacent to EBR, boundary to be located at top of the terrace	Winter (Identify well heads belonging to mine)

Unit #	Acres	Logging System	MA	Roads Needed	Unit Treatment Type	Riparian Treatment Type	Season of Treatment
11A	45	Hand Treatment	8,12	NA	Thin/remove small trees <8" dbh, Approx 13-15 ft. between crowns	Minimum 15 ft no cut along EBR, No treatment 50 ft either side of Dry Fork; No treatment on steep slopes draining into EBR boundaries located on terraces	Summer-Winter
12	10	Tractor	8	NA	Irregular spacing leaving 13-15 ft. between crowns Favor DF	50 ft. no cut buffer Lewis Creek	Winter
12A	5	Hand Treatment	11	NA	Thin/remove small trees <8" dbh, Approx 13-15 ft. between crowns Leave all DF except adjacent to power line	NA	Summer-Winter
13	70	Tractor	8,3	1226 ft. temp. road construction (may need exemption for Lewis Creek crossing)	N ½ leave S & DF, Irregular spacing 13-15 ft. between crowns, S ½ leave 1/8 to 1/10 acre LP clumps	50 ft. no cut buffer either side of Lewis Creek	Summer-Winter
14	15	Skyline	8	1529 ft. temp. road construction	13-15 ft irregular spacing between crowns, Favor DF	NA	Summer-Winter (Will need to lay down mine fence)

Unit #	Acres	Logging System	MA	Roads Needed	Unit Treatment Type	Riparian Treatment Type	Season of Treatment
16	5	Skyline	8	NA	13-15 ft spacing between crowns, Favor DF Remove LP	50 ft. No cut buffer either side of Lewis Creek	Summer-Winter
17	25	Tractor	8	NA	LP dominates, leave 1/8 to 1/10 acre clumps, Leave untreated area on south end due to wetness	Minimum 15' no cut along EBR, No cut on steep slopes adjacent to EBR, boundary to be located at top of terrace	Winter Buffer snotel site
18	25	Tractor	8	Need PVT Access Unit lies across East Boulder River	Remove LP, Leave 15-20% in untreated clumps 1/8 to 1/10 acre in size, Favor S	Minimum 15' no cut EBR, 50 ft no cut Dry Fork; No treatment on steep slopes adjacent to EBR or Dry Fork, boundaries located at top of terrace	Winter

Roads-No new permanent road construction is being proposed with the project. Primary access will mainly be provided by the East Boulder Road #205. Commercial harvest operations are expected to require the construction of some temporary roads. A maximum of 2.1 total miles of temporary road may be needed to access the areas proposed for mechanical fuels treatment using conventional ground-based logging systems (tractor and skyline). Temporary roads will consist of several short spurs with an average length of less than .18 of a mile to access the interior of units and keep landing piles away from the main road. These areas will be re-examined on the ground prior to project implementation to determine whether opportunities exist to reduce the length of newly constructed temporary road. Another approximately .5 of a mile of existing road maintenance may be needed to provide access to treatment areas. Existing roads on either ownership may require maintenance to support safe and efficient use, consistent with project design criteria and mitigation. Options to use existing roads will be examined to assure that the environmental effects of using roads on private and public land do not exceed what has been disclosed in the EA. Table 1 and

Map M-3 disclose the approximate locations of proposed temporary roads and road maintenance.

Actual temporary road locations are determined through agreement by the Forest Service and purchaser during timber sale contract administration. Temporary roads will be constructed to provide access to the interior of harvest units to facilitate ground-based harvest systems. These roads will be built on relatively flat ground slopes (less than 20%) and will be constructed to the lowest possible standard capable of supporting log haul in order to minimize ground disturbance. Temporary road construction, including clearing and removing of wood products from within the road right-of-way, will likely occur July 1-October 30 when soils are dry.

All newly constructed temporary roads will be closed to the public during harvest activities and permanently closed, recontoured, and rehabilitated within one year upon completion of harvest related activities. Rehabilitation will include making the temporary roads on National Forest System lands impassable for any motorized travel, as well as other resource protection practices. Existing roads that are improved and utilized for project related activities that are no longer needed, do not provide deeded access to private lands, or are not identified to remain open in accordance with the October 2006 Gallatin National Forest Travel Plan Decision will also be rehabilitated within one year of completion of project related activities.

Mitigation and Monitoring

Various mitigation measures have been incorporated into my decision to reduce the probability of adverse impacts to resources from implementing Alternative 2. These mitigation measures are described in detail on (pp. 2-23 through 2-37) of the EA. In addition to mitigation described in detail in the EA,

- Snags will be marked to leave and tallied by unit, and no firewood cutting signs will be posted throughout the Sale Area.
- In handtreatment Unit 7B, treatments will only occur within 100' of the powerline

Mitigation specific to the five additional Lewis Gulch units in Alternative 3 will not be applicable.

My decision also incorporates various ecosystem monitoring methods. Monitoring will be conducted and documented by various specialists and/or their staff. Monitoring results will be used to determine whether objectives are being met. Sampling frequency of the required monitoring will vary somewhat from year to year and is subject to change depending on available monitoring resources and monitoring results. Post-treatment monitoring is described on pp. 2-37 through 2-40 of the EA.

VII. Other Alternatives Considered in Detail

The ID Team developed and analyzed three alternatives in detail for the East Boulder Fuels Reduction Project. Alternative 1 is the No Action/No Treatment Alternative; Alternative 2 includes only those units along the East Boulder Road and/or units adjacent to the East Boulder Mine site; and Alternative 3 that includes all units in Alternative 2 plus an additional 5 units that are located along the Lewis Gulch Road.

In coming to my decision to select Alternative 2, which is fully described on (pp. 5–14) above, I also considered two other alternatives that are described below:

Alternative 1: No Action

The National Environmental Policy Act (NEPA) requires the consideration of a No Action Alternative (40 CFR 1502.14d), which provides a baseline of comparison to aid in determining the significance of issues and effects of the proposed action. Under this alternative, no vegetation treatments would occur. Vertical and horizontal fuel continuity of fuel arrangement would remain a concern in the East Boulder WUI, threatening public and firefighter safety.

With Alternative 1, no management actions would be undertaken over the next few years that respond to the purpose and need identified on p. 4. The opportunity to reduce fuel accumulations would be deferred with no vegetative treatments undertaken to treat stands that are susceptible to lethal fire, insect and disease outbreaks, or for fuels management. Because many of the stands in the drainage are currently heavily stocked with older trees, and experiencing mountain pine beetle infestations, the incidence of tree mortality is expected to increase over time. This would lead to an increase in the rate of accumulation of standing and down dead fuels available to support a fire, with a resulting increase in the probability that, once ignited, a wildfire would have sufficient material to burn and it would quickly increase in intensity and escape attempts to contain it. As it pertains to fuel structures along evacuation routes and existing infrastructure, Cohen (2009) continues by stating: “In some cases, we will not be able to modify the fuels enough to save homes, but maybe to reduce fire intensity along travel corridors enough so that people can survive in their vehicles...” thus allowing responding emergency personnel more time to evacuate an area. Both the Nexus and Farsite models seemingly indicated there is a need to treat hazardous fuels within the East Boulder analysis area to promote public and fire fighter safety as well as reducing the impacts to existing infrastructure in the event an unwanted wildfire occurs.

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Alternative 3 –Corridor and Lewis Gulch Units

Alternative 3 includes all units and activities associated with the selected alternative, as well as 5 additional treatment units that are located along Lewis Gulch Road (See Map 4). Alternative 3 includes vegetation treatments on a maximum of Approximately 870 acres in thirty separate units. Stand density reduction utilizing tractor harvesting equipment would occur on a maximum of approximately 660 acres on slopes up to 35%, harvesting both large

and small diameter trees. A maximum of approximately 70 acres of stand density reduction on slopes >35% would involve skyline cable harvest, and approximately 140 acres would consist of hand-treatments (removal of ladder fuels, limbing of large diameter trees, and thinning of small diameter trees). Hand-treatments would occur in sensitive areas, areas where trees are too small for commercial harvest operations, and/or in areas that are not conducive to either tractor or skyline harvest methods. All of the information included in the description of Alternative 2 and Table 1 is also applicable to Alternative 3. The additional Lewis Gulch units are mixture of tractor and skyline cable harvest areas. Treatment of units located along the Lewis Gulch Road would be conducted in the fall/winter from mid-August until snow accumulations prevent harvesting operations. Several of the units would utilize cable harvest systems, which can't be safely and effectively completed over heavy snow and there are not known weed populations in these units. Mechanical operations would be allowed from August 15 through March 31 as long as appropriate weather related conditions exist. Any ground disturbing activities would occur when soils are dry, frozen, or snow covered.

VIII. Alternatives Considered But Eliminated From Detailed Study

Throughout the analysis process, a number of other alternatives were presented and explored to address certain issues. However, for one reason or another, many of these alternatives did not merit detailed analysis or further consideration in the process. The three alternatives that were considered but eliminated from detailed study are listed below and described in detail in the EA (pp. 2-40 through 2-41).

Alternative 4 – Additional Harvest in Steep Areas Adjacent to the East Boulder Road

Alternative 5 – Defensible Space Alternative (300 foot buffer)

Alternative 6 – Include Treatments in the Adjacent Roadless Area

IX. Decision Criteria

Based on a comparison of the alternatives with the three criteria described below, I have decided to implement Alternative 2 (Corridor Units). The criteria are:

1. Achievement of the project purpose and need as outlined on page 4 of this document.
2. Responsiveness to public comments (Decision Notice, Appendix A) and the environmental issues (EA, pp. 2-4 through 2-7) identified in association with this project.
3. Consistency with laws, regulations, and policy as described in detail on (pp. 24-36) of this Decision Notice.

The EA for this project addresses in detail the potential effects of implementing or not implementing a hazardous fuels reduction project in the East Boulder WUI on a variety of National Forest resources for each of the alternatives considered. I conclude from this information that the predicted effects of implementing Alternative 2 are well within acceptable limits. After careful evaluation of the following decision criteria, I strongly believe that Alternative 2 best meets the purpose and need for the project as well as the overall public

interest.

1) Achievement of the Purpose and Need

Alternative 1 (No Action Alternative) would not treat the vertical and horizontal continuity of fuel arrangement in the East Boulder WUI. No actions would be undertaken over the next several years that respond to the purpose and need for the project as identified on p. 4. The opportunity to reduce fuel accumulations would be deferred. These stands would continue to increase in susceptibility to lethal wildfire and/or insect and disease outbreaks that could eventually lead to a climax disturbance that would result in stand replacing conditions that would pose threats to evacuation of the public from the mine and corridor and firefighter safety. .

Alternative 2 (Selected Alternative) will address the purpose and need for the project. This alternative was developed focusing on the areas of high fuel hazard, high risk of human-caused ignition, and high social values. The selected alternative emphasizes treating those stands located along the East Boulder Road and/or adjacent to the East Boulder Mine and/or private structures where thinning and reduction of conifer encroachment will improve public and firefighter safety. Harvest units associated with Alternative 2 will be administered as Management Area 8 (timber) and Management Area 11 (forested big game habitat) with some units having linear inclusions of Management Area 7 (riparian), all of which allow for commercial timber management in the Gallatin Forest Plan.

Alternative 3 (Corridor and Lewis Gulch Units) includes all units and activities associated with Alternative 2 and adds an additional 5 units that are located along the Lewis Gulch Road. Although not directly adjacent to the main corridor, the Lewis Gulch units would effectively change wildfire patterns on a local scale, however, once a fire burned around these treated units the fire would likely increase in intensity and flame length. It is important to note that the only way time of arrival was positively affected was if a fire were to ignite from the south, either inside or outside of the project area. Otherwise there would be very little difference between the effectiveness of Alternative 3 and the selected alternative.

2) Responsiveness to Environmental Issues and Public Comments

In coming to my decision, I considered internally generated issues , public issues, the comments submitted during the scoping phase of this analysis (Project File), and those comments submitted during the EA comment period (Appendix A). The Interdisciplinary Team thoroughly studied the various resource issues and developed a range of alternatives and mitigation measures that addressed the most critical issues (EA, Chapter 2). I reviewed the resource issues and public comments for the project listed below and evaluated the implications of each alternative.

Fuels: The conclusions I made after careful consideration of the effects analyses presented in the EA (pp. 3-11 through 3-24) and in the fuels specialist report (Project File) are documented below:

With Alternative 1, forested areas within the East Boulder WUI would continue to follow natural rates of succession, with fuels becoming denser in areas adjacent to the East Boulder Road, East Boulder Mine and private lands. Wind-driven wildfire would be expected to transition quickly from the ground into the forest canopy. Risks to public and firefighter safety from wildfire would be high and would continue to increase over time without treatment of fuels.

Implementation of Alternative 2 (Selected Alternative) will modify the volume and arrangement of fuels in the East Boulder WUI. Treatments will be focused on those areas adjacent to the East Boulder Road, East Boulder Mine, and private lands. Ladder fuels and surface fuel loadings will be reduced thus reducing the likelihood of crown wildfire along the corridor and providing adequate time for public evacuation. Implementation will also greatly increase firefighting capabilities and safety in the WUI.

Implementation of Alternative 3 (Includes Lewis Gulch Units) would modify the continuous arrangement of vertical and horizontal fuels within the East Boulder WUI, the same as Alternative 2. Alternative 3 would include treatment of five additional units located along the Lewis Gulch Road. In addition to the benefits described above for Alternative 2, treating hazardous fuels in the five Upper Lewis Gulch units would provide a deflecting mechanism, were a large fire to approach the area from the south. Although modeling displayed that the proposed fuel treatments in Lewis Gulch would decrease the time of arrival to existing infrastructure by up to two hours, these additional benefits would be dependent on the location of the fire start and the direction of the prevailing wind.

Noxious Weeds: The conclusions I made after careful consideration of the effects analyses presented in the EA (pp. 3-24 through 3-35) and in the noxious weeds specialist report (Project File) are documented below:

With Alternative 1 (No Action), no fuel treatments, temporary roads, or ground disturbance would be related to the project. Minor amounts of ground disturbing activities would likely occur in the East Boulder Corridor over time with the effects of these activities directly related to mitigation used to control weeds. Budgets for monitoring and treating weeds would likely remain at current levels. It is expected that weeds would continue to spread slowly over time unless a large stand replacing wildfire event were to occur, in which case noxious weed species would likely take advantage of the lack of competition from other vegetative species.

Alternative 2 (Selected Alternative) includes treatments in some areas that currently contain noxious weeds. Mitigation has been designed to limit the spread of weeds including winter harvest of the majority of the units over 8" of snow or 4" of frozen ground, washing of off-road equipment, minimizing ground disturbance in areas containing weeds, etc. (EA, pp 2-28 & 2-29). Pre and post-harvest weed monitoring and treatments are included as mandatory and will be funded for this project and coordinated with the current noxious weed monitoring and treatments that are ongoing in the corridor.

Alternative 3 (Includes Lewis Gulch Units) includes all treatments associated with the selected alternative, and also includes five additional units located in Lewis Gulch that do not currently contain known weed infestations. These units would likely need to be treated in summer/fall, and would require additional temporary road for access, so would create additional ground disturbing activities that would provide suitable habitat for noxious weed expansion into this area. All mitigation, monitoring, and weed treatments associated with Alternative 2 would also apply to Alternative 3.

Water Quality and Fisheries: The water quality and fisheries analysis is documented in the EA (pp. 3-35 through 3-44) and in the Water Quality and Fishery specialist reports (Project File). I considered this information and came to the following conclusions:

Alternative 1 would result in no direct or indirect effects to water quality, fish populations or riparian habitat because there would be no vegetation treatments. Environmental monitoring stations established by the Stillwater Mining Company would continue to be monitored. With the selection of Alternative 1 (No Action Alternative), continuous vertical and horizontal fuel concentrations would remain throughout the WUI and the likelihood of a catastrophic wildfire adversely affecting the riparian areas would continue to increase. Catastrophic wildfire has potential to increase soil erosion, debris flows, and sediment loadings to the East Boulder River.

With either Alternative 2 (Selected Alternative) or Alternative 3, project activities, as run by Region 1 sediment models, would cause a very slight increase in sediment short term, but in 3-4 years sediment levels would return to pre-treatment levels. The East Boulder River and tributaries would be buffered (left untreated). Sediment levels in the East Boulder River are currently very low and the 3-4% projected increase from project related activities is too low to be measurable in terms of sediment concentration or any adverse habitat effects for fish populations. With implementation of either action alternative, there would be no effect to riparian integrity, channel or streambank stability, or aquatic habitat and biota. Continuous vertical and horizontal fuels would be broken up and decreased in the WUI and the likelihood of a catastrophic wildfire adversely affecting the riparian areas would be decreased. Environmental monitoring stations established by the Stillwater Mining Company would continue to be monitored.

Wildlife and Wildlife Habitat: Analysis of various species of wildlife and their habitat is documented in the EA (pp. 3-58 through 3-98) and in the various wildlife specialist reports (Project File). I considered this information and came to the following conclusions:

Selection of Alternative 1 (No Action Alternative) would not alter wildlife habitat by modifying forest structure. There would be no direct or indirect effects to various wildlife species. However, without treatment, insect and disease populations are expected to continue to build, as will fuel accumulations, increasing the potential for a large wildfire that could dramatically change vegetative conditions.

Implementation of Alternative 2 (Selected Alternative) will focus vegetation treatments along the East Boulder Road, East Boulder Mine facilities and powerline, and adjacent private inholdings. Project design features and mitigation call for retaining untreated clumps of trees, untreated buffers along streams, wet areas, and the East Boulder River and its tributaries to retain habitat for various species of wildlife and birds. Thinning will reduce hiding and thermal cover somewhat, but will increase forage availability by opening up the canopy and stimulating the production of grasses, forbs and shrubs. Effects to various species of wildlife and birds would be expected to be minor because the areas to be treated currently have high levels of human activity and are not considered to be prime habitat for most species of concern.

Alternative 3 would include all treatments and effects associated with Alternative 2, plus five additional units in Upper Lewis Gulch, which are more remote and contain prime habitat for lynx, travel corridors for deer and moose, and would have greater impacts on snags and snag dependent species. However, some species of concern would benefit from increased forage opportunities in these areas. Additional temporary roads would be needed to access these units, which would temporarily reduce habitat security until the roads are reclaimed.

Vegetative Structure/Old Growth: The vegetative structure/old growth analysis is documented in the EA (pp. 3-98 through 3-102) and in the vegetation/old growth specialist report (Project File). I thoroughly considered this information and came to the following conclusions:

Selection of Alternative 1 (No Action Alternative) would have no direct or indirect effect to vegetation because no vegetative treatments are proposed with this alternative.

Alternative 2 (Selected Alternative) will only slightly change the forested vegetative structural composition of the overall project area. Treatment activities will slightly reduce old growth from 21% to 20.5%, while mature forest will actually increase from 43% to 43.5%. Generally speaking, stands dominated by Douglas-fir, Douglas-fir/ lodgepole mix or lodgepole will continue to be dominated by those species. What will change is the percent canopy cover, which post-treatment in most stands will average between 50%-60%, except in lodgepole dominated stands where post-treatment canopy will likely be somewhat less.

Alternative 3 would cause old growth to decline from 21% to 19.7% and would increase mature forest from 43% to 44.3%. Vegetative species composition and other structural stages would only see minor effects similar to those associated with Alternative 2.

Soils: The soils analysis is documented in the EA (pp. 3-48 through 3-53) and in the soils specialist report (Project File). I thoroughly considered this information and came to the following conclusions:

Selection of Alternative 1 (No Action Alternative) would have no effect on soil productivity because no ground-disturbing treatments are proposed with this alternative.

Implementation of either Alternative 2 (Selected Alternative) or Alternative 3 would have no long-term detrimental effect on soil productivity due to effective mitigation and restoration practices. Alternative 2 treats less area, requires less temporary roads, and creates less overall soil disturbance than Alternative 3, however, no treatment units associated with either alternative are predicted to exceed Region 1 standard of 15% detrimental soil disturbance. Alternative 2 requires the majority of the mechanical treatment units to be harvested over snow or frozen ground, which also limits detrimental soil disturbance, while the five additional Lewis Gulch units would likely be treated in the late summer/fall due to snowloads and the condition of the Lewis Gulch Road.

Other Issues: The NEPA provides for identification and elimination from detailed study, those issues that are not significant or which have been covered by prior environmental review, narrowing the discussion of these issues to a brief presentation of why they will not have a significant effect on the human environment or providing a reference to their coverage elsewhere (40CFR 1501.7(3)). While I considered these issues in making my decision, they were either unaffected, mildly affected, or the effects could be adequately mitigated for all of the alternatives. An assessment of each of these issues is provided in the EA (Chapter 3). Public comments and responses regarding these, as well as key, resource issues are included in Appendix A of this document.

- A. Air Quality**
- B. Roadless/Unroaded**
- C. Visuals**
- D. Recreation**
- E. Special Uses**
- F. Insect & Disease**
- G. Sensitive Plants**
- H. Economics/Mine**
- I. Heritage Resources**

3) Consistency with laws, regulations, and policy

Laws, regulations, and policies that pertain to this project include the Gallatin Forest Plan, the Gallatin National Forest Land and Resource Management Plan FEIS (1987); the Gallatin National Forest Travel Plan Decision,), National Environmental Policy Act of 1969 (NEPA) as amended, National Fire Plan 2000, 1995 Federal Wildland Fire Management Policy and Program, Healthy Forest Restoration Act of 2003, Sweet Grass County Community Wildfire Protection Plan 2008, Forest Service Manual 5150 Fuels Management, Region 1 Soil Standards, the Endangered Species Act of 1973, Federal Noxious Weed Management Act, Forest Service Manual 2526 Riparian Management, Migratory Bird Treaty Act (as amended; National Forest Management Act of 1976 (NFMA), National Historic Preservation Act of 1966 (as amended); State of Montana Water Act of 1974, Clean Air Act of 1963, State of

Montana Best Management Practices; Trout Unlimited Settlement Agreement; Land Use Strategy for Westslope and Yellowstone Cutthroat Trout; Cooperative Conservation Agreement for Yellowstone Cutthroat Trout; and Executive Order 12962 (June 1995) Aquatic Resource Protection, Executive Order 12898 – Environmental Justice. More detailed descriptions of compliance with these can be found in the various resource analyses in Chapter 3 of the EA. A comparison of compliance between the three alternatives is summarized below:

Alternative 1 (No Action Alternative) would be consistent with the above-mentioned laws, regulations, and guidelines. No vegetative treatments would occur in the East Boulder WUI with selection of Alternative 1 and opportunities to reduce fuels and improve forest health would be foregone in the immediate future. The 2000 National Fire Plan, Healthy Forest Restoration Act of 2003, and 2008 Sweet Grass County Wildfire Protection Plan all place a top priority on firefighter and public safety by implementing vegetation treatments in the WUI. With Alternative 1, there would be no modification of vertical and horizontal fuel loadings in the East Boulder WUI, adjacent to the East Boulder Road, East Boulder Mine and powerline, and private residences and structures.

Alternative 2 (Selected Alternative) and Alternative 3 will be consistent with all of the above-mentioned laws, regulations, and guidelines. Stand treatments are designed to be consistent with Forest Plan goals for MA 8, MA11, and MA7 will be achieved through the various vegetative treatments associated with both of the action alternatives. The 2000 National Fire Plan, Healthy Forest Restoration Act of 2003, and 2008 Sweet Grass County Wildfire Protection Plan all place a top priority on firefighter and public safety. Treatments associated with Alternative 2 and Alternative 3 would modify vertical and horizontal fuel loadings in the East Boulder WUI adjacent to the East Boulder Road, East Boulder Mine and powerline, and private residences and structures, providing additional time for evacuation of the corridor, and safer conditions for firefighters were a catastrophic wildfire to occur. Compliance with all other laws, regulations, and guidelines would be ensured by applying effective mitigation as outlined on pp. 2-23 through 2-37 of the EA.

X. Public Involvement

Collaboration with Sweet Grass County officials, Big Timber city officials, local fire departments, Stillwater Mining Corporation officials, BLM, local businesses, adjacent private landowners, recreationists, and other interested public has been and will continue to be important in the development of the East Boulder Fuels Treatment Project. The proposal was developed with input from adjacent private homeowners, as well as state, county, and local officials. Public meetings and field trips have been held with the Forest Service providing information and updates regarding the proposed project on National Forest System lands.

A listening session was held at the Big Timber Office on February 11, 2009. Local business representatives, city officials, county officials, fire department members, and local environmental group representatives that had previously expressed interest in helping to develop the East

Boulder Fuel Reduction Project proposal were invited. The Big Timber District Ranger and various resource specialists facilitated the session. In attendance were representatives from the Stillwater Mining Corporation (East Boulder Mine), Big Timber Volunteer Fire Department, Boulder Watershed Association, RY Timber, and local environmental groups. The Forest Service also presented the same information later that day to members of the Cottonwood Resource Council (a local environmental group) at their monthly meeting asking for their ideas and input reading the project. The purpose of these sessions was for the Forest Service to listen to what interested parties had to say regarding the project and to incorporate the public's ideas into the development of an initial proposal that was to be presented to the general public at a public meeting in March of 2009.

An open house regarding the project was held at the Big Timber Ranger District on March 18, 2009 to discuss the initial hazardous fuel reduction proposal. Notice of this meeting was posted as a Legal Notice in the Bozeman Daily Chronicle on Wednesday, February 25, 2009 and in the Big Timber Pioneer on Thursday February 26, 2009. The meeting, facilitated by the District Ranger and IDT members, and was attended by a representative from the Big Timber Pioneer, Sweet Grass County Commissioners, and some of the adjacent private landowners. The initial proposal was presented and discussed with the attendees. Ideas from this meeting were utilized in drafting the project proposal that went out for public scoping.

The scoping letter for the East Boulder Fuels Reduction Project was sent to interested parties on April 10, 2009 (Mailing List, Project File). More than 90 scoping letters were mailed to private individuals, organizations, groups, businesses, media and elected officials that the Forest Service felt would potentially be interested in the project. Ten groups or individuals responded to the scoping letter. A summary of scoping comments was created and all of these comments, as well as internal comments, were considered in determining potential issues and developing the actual treatment units that are associated with each of the action alternatives.

Public field trips have been available to anyone wanting to review the various activities associated with the alternatives for this project. The intention is to provide the interested public with an on the ground opportunity to comment on various aspects of the proposed project.

The environmental issues addressed in EA were identified through the processes described. Key issues were used to develop alternatives to the proposed action and to focus the scope of the analysis on the issues that are "key" to the decision to be made. Documentation of the review of scoping, comments, and potential issues can be found in the Project File.

Once the scoping process was completed, the interdisciplinary team (ID Team) developed alternatives to the proposed action with specific features designed to address the previously identified issues. For the East Boulder Fuels Reduction Project, the No Action Alternative, the Proposed Action Alternative, and one additional action alternative were developed for detailed consideration. The EA for the project was released in March of 2010 and mailed to 35 potentially interested parties or groups. A total of three comment letters were received regarding the project.

The East Boulder Fuels Reduction Project was identified on the Gallatin National Forest NEPA Quarterly Project Listings from spring 2008 through spring 2010.

XI. Consistency With Other Laws, Regulations, and Policies

Gallatin Forest Plan

The Gallatin Forest Plan (1987) embodies the provisions of the National Forest Management Act, its implementing regulations, and other guiding documents. The Forest Plan sets forth in detail the direction for managing the land and resources of the Gallatin National Forest. The East Boulder Fuel Reduction Project tiers to the Forest Plan FEIS, as encouraged by 40 CFR 1502.20. Chapter 3 of the EA includes a summary by resource of the standards and guidelines established in the Forest Plan that are pertinent to my decision. My decision to implement Alternative 2 is also supported by the following Forest Plan direction:

Forest Plan Goals

- Provide a fire protection and use program that is responsive to land and resource management goals and objectives. (FP p. II-2)

Forest Plan Standards

- Fire Standards: Treatment of natural fuel accumulations to support hazard reduction and management area goals will be continued. (FP p. II-28)

The Forest Plan uses management areas to guide management of the National Forest lands within the Gallatin National Forest. Each management area (MA) provides for a unique combination of activities, practices, and uses. The East Boulder Fuels Reduction project area includes five management areas. The majority of the timber harvest and treatment activities involved with this project will occur in MA8 and MA11, with a few small inclusions of MA3 and MA12 and linear inclusions of MA7 in some units. All fuel reduction activities associated with the proposed actions comply with Forest Plan guidelines for the applicable MAs. See MA Map 5, EA, Ch 1-18 & 1-19 and Table 1 (Individual Unit Descriptions) for MA designations of individual units.

The Forest Plan (Chapter III) contains a detailed description of each management area as it relates to resource issues. Following is a brief description of the applicable management area direction and how my decision is consistent with this direction.

Management Area 8 (MA 8)- These areas consist of lands that are suitable for timber management. Douglas-fir and lodgepole pine should be favored in timber management. Both even aged and uneven aged harvest methods should be included. Project plans should incorporate considerations for fish and wildlife. My decision to implement Alternative 2 incorporates prescriptions that will favor Douglas-fir and lodgepole pine. A variety of different treatments have been incorporated into the individual unit prescriptions (See Table 1). Numerous mitigation have been incorporated into project design to protect fish and wildlife habitat and species.

Management Area 11 (MA 11)- These areas consist of forested big game habitat. They include productive forestlands that are suitable for timber harvest, provided that big game habitat objectives are met. Include even and uneven aged harvest systems. Wildfire

suppression response will be control. MA11 requires that timber harvest on big game winter range is designed to enhance winter range capability and design even-aged openings so that no point is more than 600 feet from cover (p. III-34). The Gallatin Forest Travel Management Plan states that new roads built for administrative projects should be temporary in nature, and effectively gated to restrict motorized public use. Once the activity is complete, these roads will be permanently and effectively closed and re-vegetated (USDA 2006: I-II, Guideline D-7).

My decision will be in compliance with applicable direction for management of big game habitat because there will be adequate habitat maintained in the project area and surrounding vicinity to allow for increasing populations of big game species. Winter range will be managed to meet the forage and cover needs of deer, elk and moose, with increased forage/cover ratios. Proposed treatments within MA 11 are designed to enhance winter range capability by leaving key areas untreated to retain vital cover, while at the same time increasing forage production in areas where the forest canopy is opened. The Forest Plan standards to retain 2/3 of the hiding cover associated with key habitat features, and to ensure no even-aged openings are more than 600 feet from cover, will be met by incorporating 15% to 20% untreated clump retention through unit layout design. Road density will be managed by following the Travel Plan guideline to restrict public use on project roads during implementation and effectively close temporary roads upon project completion.

Management Area 7 (MA 7) - These areas consist of lands bordering lakes, streams, and/or springs that support moisture loving vegetation. They will be managed to protect the soil, water, vegetation, fish and wildlife dependent on it. These areas are classified as suitable for timber production if adjacent areas contain suitable timber. Design timber harvest to meet the needs of riparian dependent species. The wildfire suppression response will be the same as for the management areas surrounding riparian areas. *Note: These areas are normally too narrow to be displayed on Forest MA maps due to the small scale of these maps.*

Detailed analysis was completed to identify and mitigate for any adverse affects. Alternative 2 meets these wildlife and fishery standards applicable to MA7 (riparian). Standards for Management Area 7 applicable to various resource issues will be met with the implementation of the mitigation measures outlined in the EA, pp. 2-23 through 2-25 and BMPs will be followed to assure that the needs of riparian dependent species will be met with project implementation.

Management Area 3 (MA 3)- These areas consist of non-forest, noncommercial forest, and forested areas unsuitable for timber production. Timber salvage, product and firewood removal may occur where access exists. Salvage of dead, dying, or high-hazard trees to prevent insect and disease population buildups that could adversely affect regulated timber stands is permitted. Only two treatment units have very minor inclusions of MA3. Treatments within these areas will comply with management area direction with Alternative 2.

Management Area 12 (MA 12) - MA 12 provides goals and objectives to maintain and improve the vegetative condition to provide habitat for a diversity of wildlife species and a variety of dispersed recreation opportunities. Harvest of post, pole, and other wood products can take place adjacent to existing roads. Only small portions of primarily hand treatment units lie within MA12. Treatments in these areas were designed to comply with MA12 management direction.

Detailed analysis was completed to identify and mitigate for any adverse affects. The action alternatives meet these wildlife and fishery standards applicable to MA 8, as well as MA7 (riparian). Standards for Management Areas 7 & 8 applicable to the various resource issues will be met with the implementation of the mitigation measures outlined in the EA pp. 2-23 through 2-37.

There is nothing in my decision (Alternative 2) that is incompatible with the direction for any of the Management Areas that are found in the treatment areas associated with the project.

General Direction

The Gallatin Forest Plan contains a goal to provide habitat for all indigenous wildlife species including increasing populations of big game animals (p. II-1). Forest-wide standards in the Forest Plan require that winter range be managed to meet the forage and cover needs of deer, elk, moose and other big game species, and that at least two thirds of the hiding cover associated with key habitat components be maintained over time (p. II-18). Key habitat components include moist areas (wallows, etc), foraging areas (meadows and parks), thermal cover, migration routes and staging areas. Much of the proposed treatment falls within MA 11, which requires that timber harvest on big game winter range is designed to enhance winter range capability and to design even-aged openings so that no point is more than 600 feet from cover (p. III-34). The Gallatin Forest Travel Management Plan states that new roads built for administrative projects should be temporary in nature, and effectively gated to restrict motorized public use. Once the activity is complete, these roads should be permanently and effectively closed and re-vegetated (USDA 2006: I-II, Guideline D-7).

All alternatives for the project would be in compliance with applicable direction for management of big game habitat. Under each alternative, there would be adequate habitat maintained in the project area and surrounding vicinity to allow for increasing populations of big game species. Winter range would be managed to meet the forage and cover needs of deer, elk and moose, with increased forage/cover ratios under the action alternatives. Proposed treatment within MA 11 is designed to enhance winter range capability by leaving key areas untreated to retain vital cover, while at the same time increasing forage production in areas where the forest canopy is opened. The Forest Plan standards to retain 2/3 of the hiding cover associated with key habitat features, and to ensure no even-aged openings are more than 600 feet from cover, would be met through unit layout design. Road density would be managed by following the Travel Plan guideline to restrict public use on project roads during implementation and effectively close temporary roads upon project completion. Elk population goals have been met for this EMU and are considered to be healthy and widely distributed.

Forest Plan Standard for Wildlife and Fish, page II-18, section 6.a.8 – Emphasis will be given to the management of special and unique wildlife habitats such as wallows, licks, talus, cliffs, caves, and riparian areas. Key components such as cover, security areas, and road densities would remain unchanged with the proposed action or any of the alternatives. None of the alternatives would result in adverse modification of big game or its associated habitat. Elk population goals have been met for this EMU and are considered to be healthy and widely distributed.

Forest Plan Standard for Threatened and Endangered Species, page II-18, section 6.b.all. Threatened and endangered species were addressed as part of the analysis for proposed vegetation and stewardship treatments.

Forest Plan Standards for Grizzly Bear for timber and fire management, p. G-10-11, are concerned with evaluating and reviewing biological information, utilizing proposed treatments to improve habitat for bears and minimizing open road density within occupied habitat and unoccupied habitat. The project is outside of the recovery area and is considered unoccupied by grizzly bears. All standards were considered during project development and mitigation measures have been incorporated to address any specific standards and issues that were identified. There are no standards specific to management for grizzly bears in the management areas associated with this project.

Forest Plan Standard for Wildlife and Fish, page II-18, section 6.a.12 – Habitat that is essential for species identified in the Sensitive species list developed for the Northern Region will be managed to maintain these species. Sensitive species were addressed as part of the analysis for proposed vegetation treatment in the East Boulder project area. All terrestrial sensitive species were dismissed or analyzed in detail. Mitigation measures were identified as appropriate.

Forest Plan Standard for Wildlife and Fish, page II-18, section 6.a.13 – Indicator species will be monitored. Indicator species were identified and addressed as part of the analysis for proposed vegetation treatment in the East Boulder project area. Mitigation measures were identified as appropriate.

The Gallatin Forest Plan (USDA 1987) contains standards for retention of snags and down woody debris (Amendment No. 15), which are important habitat components for a number of migratory bird SOC (See Issue N-Snags, pp. 3-95 through 3-97). Where possible, snags would be left in clumps with live trees for protection. Where there are not sufficient snags to meet the minimum retention standard of 30 snags per 10 acres, the largest available dead trees will be left as snags. As a part of project layout, snags will be marked to leave and tallied by unit. No firewood cutting signs will be posted throughout the sale area to ensure that the snags will not be removed for firewood. If firewood cutting becomes a problem after these timber sale signs are removed (following completion of project activities), wildlife tree tags will be placed on snags that are visible and easily accessible from the East Boulder Road. This would be consistent with the Snag Management Direction, Guideline A2 which states - "protect snags, purposefully retained for wildlife use, from loss to firewood cutting. Emphasize snag retention in areas away from easy access for firewood cutting" and A2-A "During timber sale layout, mark all designated snags and replacement trees that could be easily accessed by firewood cutters".

Between retention clumps and remnant trees in thinned areas, there should be no problem meeting the Forest Plan requirement for replacement trees. Regenerating stands scheduled for hand thinning (Units 2, 3A, 4, 6, 7B, 8, 8A, 11A, 12A) currently have no snags available for retention, but would meet requirements for replacement trees. Snag habitat needs were considered for Townsend's big-eared bat, flammulated owl, Northern goshawk, pine marten, and migratory birds. Forest Plan standards for snag and down woody debris management would be met under my decision. Snag habitat would remain well distributed across the landscape within all forest types.

The Plan also contains a standard to maintain suitable habitat for those species of birds, mammals and fish that are totally or partially dependent upon riparian areas for their existence (p. III-19). The proposed actions will be in compliance with applicable direction. Potential effects of the project have been evaluated, with focus on migratory bird species of concern. Standard operating procedures and project design criteria will be implemented to reduce potential impacts of fuel treatment, and meet Forest Plan direction.

Forest Plan (Vegetation Diversity Item 1, FP p. II-19) forestlands and other vegetative communities such as grassland, aspen willow, sagebrush and whitebark pine will be managed by prescribed fire and other methods to produce and maintain the desired vegetative condition. Methods of site preparation will normally be machine scarification and piling or broadcast burning. Other methods may be prescribed which meet the objectives of the silvicultural system. These include underburning, trampling, hand tool scarification, machine yarding, herbicides, and others. Activity created dead and down woody debris will be reduced to a level commensurate with risk analysis. Treatment of natural fuel accumulations to support hazard reduction and management area goals will be continued.

Forest Plan Standard for Recreation, page. II-1 - Provide for a broad spectrum of recreation opportunities in a variety of Forest settings. The Forest Plan recognizes objectives for recreation settings by incorporating the Recreation Opportunity Spectrum (ROS), which provides a framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities (FP, pg. II-2). Furthermore, the Plan specifically identifies as objectives activities that will be managed 1) to provide for users' safety, 2) that existing recreational hunting opportunities will be maintained, 3) that recreation trails will provide safe public access, and 4) to continue the cabin rental program (FP, pg. II-2-3). Alternative 2 will comply with this direction provided by the Gallatin Forest Plan.

The Forest Plan identifies Inventoried Roadless Areas (IRAs), including area 1-372, the "North Absaroka" (FP, pg. V-9-10 and Appendix C-5), which is located within or adjacent to portions of the project area. All alternatives are in compliance with laws, regulations and direction regarding roadless area concerns. Potential impacts to the North Absaroka Inventoried Roadless Area and to unroaded area are non-existent.

The Gallatin Forest Plan (page 11-28) requires the Forest to implement an integrated weed control program in order to confine present infestations and prevent establishing new areas of noxious weeds. Weed monitoring and control are an important part of my decision. Numerous mitigation measures have also been established to minimize weed infestation and spread in the project area.

Forest Plan Direction for Visual Resource, page II-1 - Provide visitors with visually appealing scenery. Forest Plan Visual Quality Objectives (VQOs) are a blending of the results from the VMS Inventory and other resource considerations. The VQOs serve as the Forest Plan standards for visual quality that provide large-scale guidance for the degree of acceptable landscape change for all management initiated landscape-altering activities (FP, pg. II-16). Within the East Boulder project area, the Forest Plan VQOs of Partial Retention and Maximum Modification apply. The definitions of these VQOs are shown on page VI-44 of the Gallatin National Forest Plan. By implementation of the mitigation and design criteria outlined in the EA on pp. 2-33 through 2-35, my decision will meet Forest Plan standards for visual quality.

The Gallatin Forest Plan, Forest Wide Standards 10.2 (page II-23) requires that Best Management Practices (BMP's) will be used in all Forest watersheds. The Montana Forestry BMP's are included in Appendix A, BMPs, which are required to be followed in all timber harvest and road construction activities. Forest Plan Direction A.5 (page II-1) requires the Gallatin NF to meet or exceed State of Montana water quality standards. The East Boulder Fuels Reduction Project will be in compliance with Gallatin NF Forest Plan direction for water quality protection. Sediment modeling indicates that project sediment increases are immeasurable and well within the Gallatin NF sediment guidelines.

The Gallatin National Forest Plan provides broad direction for the management of forest fishery resources and more specific direction for management of sensitive species. Riparian Direction: MA7 (FP, p. III-19). Refer to Item No. 29f that resolves FP discrepancy for timber management in riparian zones. Standards have been incorporated as part of the Gallatin National Forest Travel Management Plan signed December 18, 2006 (GNF 2006). All alternatives comply with existing laws, regulations, and Forest Plan direction. With applied mitigation, all alternatives meet the intent of the Trout Unlimited Settlement Agreement because riparian areas and aquatic resources are protected. No effect to habitat and fish populations is expected.

Forest Plan Direction for Air Quality in Forest Wide Standards, page II-23-.Require the Forest to cooperate with the Montana Air Quality Bureau (now DEQ) in the SIP and smoke management plan. By limiting the timing, quantity, and intensity of the burning activities as described in the EA Chapter 2 (2-25 & 2-26), my decision will comply with the air quality laws, guidelines and standards.

The Gallatin National Forest Land and Resource Management Plan (1987

My decision tiers to the Final Environmental Impact Statement (FEIS) and Land and Resource Management Plan (Forest Plan) for the Gallatin National Forest (USDA Forest Service 1987 PF 206 & 206(a)). The Forest Plan provides direction for all resource management programs, practices, uses, and protection measures for the Gallatin National Forest.

Gallatin Forest Travel Plan Direction

The 2007 Gallatin National Forest Travel Plan directs where specific types of motorized use can occur. All alternatives are in compliance with these laws, regulations, and direction regarding recreation concerns. Various laws provide the authority for special uses on NFS lands. The Forest Plan authorizes the issuance of special use permits on a case by case basis (FP, pg. II-27). Private Road Special Use Permits or easements are considered a variance to the 2007 Gallatin National Forest Travel Plan. All alternatives are in compliance to law, regulation and direction regarding special use concerns. Impacts to permittees with facilities on NFS lands can be easily avoided or mitigated with input from the permittees.

Stream standards have been incorporated as part of the Gallatin National Forest Travel Management Plan signed December 18, 2006 (GNF 2006). In the past, the sediment standard consisted of four categories of streams. Fishless headwater streams (i.e., Category C and D streams) were managed at a level below what Montana Department of Environmental Quality (MDEQ) considers as maintaining beneficial uses. This new direction formalizes these two standards for sediment. Class A streams are those streams that support a sensitive fish species or provide spawning or rearing habitat to the Gallatin, Madison, or Yellowstone Rivers, or Hebgen Lake. Class A streams are to be managed at a level which provides at least 90 percent of their inherent fish habitat capability. Class B streams are all other streams. All alternatives comply with existing laws, regulations, and Forest Plan direction.

Regional Standards

Region 1 Soil Standards

All soil mitigations and design criteria are intended to keep detrimental soil disturbance in treatment units below the 15% maximum allowable DSD as mandated by the R-1 Supplement 2500-99-1 to FSM 2500 – Watershed and Air Management standards. Coarse woody debris criteria have an additional benefit of ensuring that sufficient organic matter is retained on treatment sites to maintain soil fertility and carbon cycling levels. Other criteria that prevent soil erosion maintain soil fertility and carbon cycling functions in the soil as well.

My decision is both consistent with current direction in the Gallatin Forest Plan. In addition, the soil mitigations and design features meet the full intent of relevant objectives and standards in the Forest Plan for the Gallatin National Forest. All of the above are designed to address the Forest Plan's objective for mitigating "impacts occurring to the watershed resource from land use activities". Minimizing soil erosion in treatment units through soil mitigations also helps meet the Forest Plan objective for "meeting State water quality standards".

Relevant Forest Plan directives are: 8.b.1.c. "Maintain an adequate nutrient pool for long-term site productivity through the retention of topsoil and soil organisms", 10.8. All management practices will be designed or modified as necessary to maintain land

productivity and protect beneficial uses.” and 14.4. Treatment of natural fuel accumulations to support hazard reduction and support management area goals will be continued.

National Fire Management Direction

1995 Federal Wildland Fire Management Policy and Program

The 1995 Federal Wildland Fire Management Policy and Program contain guiding principles that support my decision regarding the East Boulder Fuels Reduction Project.

Firefighter and public safety is the first priority in every fire management activity. The primary purpose and need of the East Boulder Fuels Reduction Project is to improve firefighter and public safety by modifying fire behavior by changing the fuels environment in the portions of the WUI that are the closest to the East Boulder Road (evacuation route), the East Boulder Mine, the high intensity powerline servicing the mine, private residences and other structures. The modification of fuels will provide safer conditions for evacuation and firefighting in the event of a large wildfire event.

Fire management plans, programs, and activities support land and resource management plans and their importance. My decision is consistent with the Federal Wildland Fire Management Policy and the Gallatin National Forest Fire Management Plan.

Sound risk management is the foundation for all fire management activities. The East Boulder Project analyzes the risk to the public and firefighter communities associated with the Selected Alternative by comparing the resulting fuel conditions associated with management activities versus “no action”, as related to fire behavior.

Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives. With the East Boulder Project, the overriding value at risk is the safety of the public and firefighters. A cash-flow analysis included Chapter 3 of the EA supports the conclusion that funds will be available to achieve the ecosystem restoration items such as weed monitoring and spraying and treatment of sub-merchantable fuels.

Fire management plans must be based on the best available science. The East Boulder Project has incorporated the latest science and modeling techniques for fire behavior prediction and the effectiveness of fuels treatments. These techniques include Forest Vegetation Simulation –Fire/Fuel Effects Extension (FVS-FFE), NEXUS, and BEHAVE (See EA pp. 2-4 & 2-5 for a description of these modeling techniques).

Fire management plans and activities incorporate public health and environmental quality considerations. The East Boulder Project addresses the need for increasing public and firefighter safety in the event of a large fire event. Smoke management, recreational values, and the impacts of fuels treatments on wildlife, fish, noxious weeds, soils, and visuals are also addressed in the document.

Federal, Tribal, State and local interagency coordination and cooperation are essential. Coordination and cooperation for the project included local consultation with

the Sweet Grass County officials including county commissioners, fire, and law enforcement; and the Northern Rocky Mountain Resource Conservation and Development Council (RC&D). Federal cooperation and consultation includes State and Federal Private Forestry groups and the Crow tribal government.

National Fire Plan 2000

The National Fire Plan 2000 states “Assign the highest priority for hazardous fuels reduction to communities at risk, readily accessible municipal watersheds, threatened and endangered species habitat, and/or other important local features, where current conditions favor uncharacteristically intense fires”. The analysis area for the project has been identified by the 2008 Sweet Grass County CWPP as a WUI that is at high risk for catastrophic wildfire. The actual treatment units associated with my decision are located in the portions of the East Boulder WUI that are in the closest proximity to the East Boulder Road, East Boulder Mine facilities and powerline, and private residences and structures.

Legal Requirements

My decision adheres to all of the following legal requirements:

Endangered Species Act (ESA) of 1973

Canada lynx are listed as a threatened species under the Endangered Species Act (ESA) and the Forest Service must therefore ensure that any action it authorizes is not likely to jeopardize the continued existence of this species, or to destroy or adversely modify critical habitat [Section 7(a)(2)]. To comply with the ESA, effects of the preferred alternative (Alternative 3, which is more impactful than Alternative 2) on lynx and critical habitat were analyzed in a Biological Assessment prepared for this project. Since lynx are a native species, the Forest Service has a responsibility under the National Forest Management Act (36 CFR 219.19) to provide habitat. The Northern Rockies Lynx Management Direction (NRLMD) ROD was published in March 2007. This decision amended the Gallatin Forest Plan by incorporating goals, objectives, standards and guidelines for lynx habitat management. The NRLMD contains exemptions that allow a certain amount of thinning in snowshoe hare habitat if the purpose is for fuel reduction within a Wildland Urban Interface (WUI). The Final Rule for lynx critical habitat identifies Primary Constituent Elements (PCE), which are those physical and biological features that are essential to the conservation of the species, and that may require special management considerations or protections (USDI 2009:8638). Where NRLMD standards are not strictly met for this project; i.e. where exemptions for standards VEG S5 and VEG S6 are applied. These factors were evaluated in a Biological Assessment and reviewed in consultation with the US Fish and Wildlife Service. The April 1, 2010 response letter from USFWS states that the effects of the East Boulder Project would fall within the range of effects analyzed in their 1st tier biological opinion for Canada lynx and the project conforms to their incidental take statement. Therefore no 2nd tier biological opinion is required for the project; the proposed treatments are well within the total acres anticipated for the Forest for fuels management in the WUI.

Under Section 7 of the Endangered Species Act, each Federal agency must ensure that any action authorized, funded or carried out is not likely to jeopardize the continued existence of

any threatened or endangered species. . The project is outside of the recovery area and is considered unoccupied by grizzly bears. All standards were considered during project development and mitigation measures have been incorporated to address any specific standards and issues that were identified. My decision “*may affect but is not likely to adversely affect*” the grizzly bear. Based on the analysis, all applicable standards in the grizzly bear amendment will be met under my decision for the project.

Executive Order 12898 – Environmental Justice

Executive Order 12898 directs each Federal agency to make achievement of environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The actions taken with my decision will not adversely affect any disadvantaged or minority groups because of the project area’s distance from large population centers and the diffuse level of adverse impacts on any social group. A project such as this will not produce hazardous waste or conditions that might affect human populations.

Federal Noxious Weed Act of 1974 (as Amended) and Executive Order 13112

The Forest Service is directed by law, regulation and agency policy to treat weeds. A number of laws give broad authority for control of weeds on National Forest System land, and several laws and regulations provide for control of such weeds. In particular Executive Order (03 February 1999), directs Federal Agencies to prevent and control invasive species. The Federal Noxious Weed Act of 1974 (PL 93-6329), authorizes the Secretary of agriculture to cooperate with other agencies to control and prevent noxious weeds. The Montana Noxious Weed Law 1948, amended in 1991, provides for designation of noxious weeds in the State, direction of control efforts, registration of pesticides and licensing of applicators, and enforcement of statutes. The law delegates enforcement to County Commissioners. Weed monitoring and treatment are an important part of my decision, and weed monitoring and treatments will be mandatory and funded. Numerous mitigation measures have also been established to minimize weed infestation and spread in the project area (See EA, pp. 2-28 & 2-29).

Forest Service Manual (FSM 5150) Fuel Management

The objective of FSM 5150.2 is to identify, develop, and maintain fuel profiles that contribute to the most cost-efficient fire protection and use program in support of land and resource management direction in the forest plan. My decision will create a fuel profile that is safer for the public and firefighters. In doing so, fires will be less difficult to control and fire protection will be more cost-efficient.

The policy associated with FSM 5150.3 is to integrate fuel management and fire management programs in support of resource management objectives. Several resource management objectives will be met with the project as well as meeting the fuel management objectives.

Forest Service Manual (FSM) 2526 Riparian Area Management

Riparian ecosystems are defined as a transition area between the aquatic ecosystem and the adjacent terrestrial ecosystem; identified by soil characteristics or distinctive vegetation communities that require free or unbound water. For the East Boulder Fuels Reduction Project, the Selected Alternative was designed to comply with Forest Service Manual 2526 objectives and policy.

Migratory Bird Treaty Act (As Amended)

Management of migratory bird species and their habitats are governed by a wide range of authorities. Most direction regarding conservation of these species falls under the umbrella of the Migratory Bird Treaty Act (16 USC 703-712) and an associated Presidential Executive Order. Executive Order 13186 requires agencies to ensure that environmental analyses evaluate the effects of federal actions and agency plans on migratory birds, with emphasis on species of concern. My decision will be in compliance with this direction. Potential effects of the project have been evaluated, with focus on migratory bird species of concern. Standard operating procedures and project design criteria will be implemented to reduce potential impacts of fuel treatment.

National Environmental Policy Act of 1969, as amended (NEPA)

The National Environmental Policy Act (NEPA) of 1969 requires an assessment of the impacts of human activities upon the environment. NEPA establishes the format and content requirements of environmental analysis and documentation. The entire process of preparing the East Boulder Fuel Reduction EA was undertaken to comply with NEPA.

National Forest Management Act of 1976 (NFMA)

The National Forest Management Act (NFMA) requires that Forest plans "preserve and enhance the diversity of plant and animal communities...so that it is at least as great as that which can be expected in the natural forest" (36 CFR 219.27). Furthermore, implementation regulations for the NFMA specify that, "Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area".

There are currently 9 terrestrial species and 3 aquatic species identified as "Sensitive" that are known or suspected to occur on the Gallatin National Forest (USDA 2004). With the implementation of my decision, the proposed vegetation and stewardship treatments will have "no impact" on peregrine falcon, trumpeter swan, harlequin duck, flammulated owl, northern goshawk, Townsend big-eared bat, wolverine, western toad, northern leopard frog, westslope cutthroat trout, arctic grayling, or Yellowstone cutthroat trout (See Biological Evaluation located in Project File and EA, pp. 3-70 through 3-77).

There will be "no impact" to sensitive plants within the treatment areas due to lack of potential suitable habitat or absence of plants based on completed surveys.

National Historic Preservation Act of 1966 (NHPA)

The primary legislation governing modern heritage resource management is the National Historic Preservation Act (NHPA) of 1966 (amended in 1976, 1980, and 1992). All other heritage resource management laws and regulations support, clarify, or expand on the National Historic Preservation Act. These laws and regulations guide the Forest Service in identifying, evaluating, and protecting heritage resources on national forest system lands. The Forest Service is required to consider the effects of agency actions on heritage resources that are determined eligible for the National Register of Historic Places (NRHP) or on heritage resources not yet evaluated for eligibility. Eligible Heritage Guidelines for Archaeology and Historic Preservation are also an important element of federal agencies' management of cultural resources on public lands.

The Crow Tribal Nation located on the Crow Reservation, regards the Gallatin National Forest as an area of concern, and is consulted on all projects occurring on the Forest. Heritage and Tribal interests are regulated by federal laws that direct and guide the Forest Service in identifying, evaluating, and protecting heritage resources. My decision to implement Alternative 2 complies with all federal laws regarding heritage resources (See EA, pp. 3-109 through 3-112).

The State of Montana Water Quality Act (1969, 1975, 1993, 1996)

The State of Montana Water Quality Act requires the state to protect, maintain, and improve the quality of water for a variety of beneficial uses. Section 75-5-101, MCA established water quality standards based on beneficial uses. The Montana Department of Environmental Quality has designated all surface waters in the project area as B1 Classification. Waters classified as B1 must be suitable for drinking, culinary, and food processing purposes after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply. A 5 NTU turbidity increase above naturally occurring turbidity is allowed in B1 waters. My decision will be in compliance with the Montana Water Quality Act and Administrative Rules of Montana, State of Montana Best Management Practices, WQLS/TMDL constraints, as well as Gallatin NF Forest Plan direction for water quality protection. Sediment modeling indicates that project sediment changes are immeasurable and well within the Gallatin NF sediment guidelines.

Clean Air Act of 1963

Congress passed the Clean Air Act in 1963, and amended it in 1972, 1977, and 1990. The purpose of the act is to protect and enhance air quality while ensuring the protection of public health and welfare. The act established National Ambient Air Quality Standards (NAAQS), which must be met by state and federal agencies, and private industry. The Montana DEQ is currently cooperating with the Western Regional Air Partnership (WRAP) to establish visibility goals, monitoring plans, and control measures to comply with regional haze visibility standards in all Montana Class I areas including Yellowstone National Park. The Gallatin NF Forest Plan in Forest Wide Standards pp. II-23 requires that the Forest will cooperate with the Montana Air Quality Bureau (now DEQ) in the SIP and smoke management plan. Emissions from the East Boulder Fuels project are projected to be in compliance with the Gallatin NF Forest Plan in

Forest Wide Standards pp. II-23 via compliance with the NAAQS 24 hour average PM_{2.5} 35 ug/m³ standard where the public would have access to air via the minimum ambient distances. Current compliance with the Montana DEQ includes meeting NAAQS, compliance with Montana open air burning provisions and operational constraints by the Montana/Idaho Smoke Management Group. By limiting the timing, quantity, and intensity of the burning activities as described in the EA (pp. 2-25 & 2-26), my decision will comply with the air quality laws, guidelines and standards.

Trout Unlimited Settlement Agreement

The goals, policies and objectives for aquatic resources outlined in the Forest Plan have been further defined within an agreement with the Madison-Gallatin Chapter of Trout Unlimited (TU) in 1990. The intent of the Agreement was to provide more specific direction on timber harvest in riparian areas. Design features and mitigation have been incorporated into the East Boulder Project to assure that my decision will adhere to the TU Settlement Agreement (See EA, pp. 2-24 through 2-25).

Land Use Strategy for WCT and YCT

Land Use Strategy for WCT and YCT: The Upper Missouri Short Term Strategy for Conserving Westslope Cutthroat Trout (UMWCT short term strategy) provides implementation direction for the MOU that was adopted in 1999. The Strategy calls for preventing habitat degradation and improving existing populations and their habitat until a long-term recovery strategy can be established and implemented. The Strategy ensures that land-use activities, like timber sales, will be implemented in a manner that results in a “beneficial impact” or “no impact” biological decision. Implementation of the East Boulder Project decision will have no effect to aquatic habitat or fish populations.

Cooperative Conservation Agreement for Yellowstone Cutthroat trout within Montana.

Cooperative Conservation Agreement for Westslope cutthroat trout and Yellowstone Cutthroat Trout in Montana, 2007: In 2007, the Gallatin and Custer National Forests joined numerous other agencies and the Crow Tribe in forming a MOU and Cooperative Conservation Agreement for Westslope cutthroat trout and Yellowstone Cutthroat Trout in Montana. This agreement establishes a framework of cooperation between the participating parties to work together for the conservation of YCT. Because riparian and aquatic resources are protected with my decision, no effect to habitat and fish populations are expected.

Executive Order 12962 (June 1995)

Section 1. Federal Agencies shall, to the extent permitted by law and where practicable, and in cooperation with States and Tribes, improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities. Implementation of my decision will protect riparian areas and aquatic resources.

XII. Finding of No Significant Impact (40 CFR 1508.27)

I have determined from thorough review of the East Boulder Fuels Reduction Project EA and Project File that my decision is not a major federal action that will significantly affect the quality of the human environment. Therefore, an Environmental Impact Statement is not needed. This determination is based upon review of the following criteria:

1. Impacts that may be both beneficial and adverse.

Implementation of the Selected Alternative (Alternative 2) will include a combination of mechanical and hand thinning on up to 650 acres that are adjacent to the East Boulder Road, East Boulder Mine and/or powerline, and/or private residences and structures in the East Boulder WUI (See Map 3) on National Forest System lands. Slash and landing piles will be burned in accordance with Montana Air Quality Standards (EA, pp. 3-44 through 3-47). No prescribed burning is associated with this project.

Alternative 2 was designed to be responsive to the effects of thinning, piling, and pile burning on the various resources present within the analysis area boundaries. By applying the mitigation for various resources outlined in the EA (pp. 2-23 through 2-37), there will be no significant adverse impacts to resources associated with this decision (EA, Chapter 3, various resource analyses). Even though forested areas will be thinned and wood fiber removed, these resources are recoverable within a relatively short timeframe (90-120 years). Beneficial effects will result from the implementation of Alternative 2 for public and firefighter safety in the corridor, certain wildlife foraging habitats, and for forest health of the treated areas.

2. The degree to which the proposed action affects public health or safety.

The selected alternative is consistent with the September 2008 Sweet Grass County Community Wildfire Protection Plan (CWPP). In fact, the project was specifically identified as Proposed Project 6.6.1.1.3 on page 53 of the CWPP and the East Boulder River corridor was included in the list of current priorities for treatment on p. 43 of the plan. Implementation of the selected alternative will not create significant negative effects to public health and safety (air quality, water quality, recreation, special uses, transportation) due to the use of effective project design and mitigation measures as described in the EA (pp. 2-23 through 2-37). Project implementation was designed to improve public and firefighter health and safety by breaking up the continuous vertical and horizontal fuels, thus reducing the probability and/or intensity of a catastrophic crown fire in the corridor. The vegetation treatments were designed to reduce fuels along the main evacuation route for the East Boulder Mine employees, private residents, and recreating public, which will also allow for safer firefighter conditions.

3. Unique characteristics of the geographic area.

The project area is located in the Absaroka Mountain Range in the southern portion of the Big Timber Ranger District in Sweet Grass County, Montana. The East Boulder Road #205 branches off of the Main Boulder highway approximately 20 miles south and west of Big Timber and follows the East Boulder River to the Stillwater Mining Corporation's East Boulder Mine complex at its terminus. The Sweet Grass County Community Wildfire Protection Plan (Project File), completed in September of 2008, identified the East Boulder River corridor as a community that is at risk from potential wildfire.

Approximately 6-7 miles of this road are adjacent to private lands up to the forest boundary, and an additional 5-6 miles of the road extend from the forest boundary to the mine with areas of private ownership interspersed (See Vicinity Map 1). The East Boulder corridor is bounded to the south by the East Boulder Plateau and to the north by Long Mountain. The area surrounding the East Boulder Mine consists of a "box canyon" cirque with steep sides and the East Boulder River flowing roughly 3000-4000 feet below the high elevation plateaus, which are located on both the north and south sides of the canyon. The drainage is characterized by a combination of rocky timbered slopes, scree slopes, and occasional meadows. Much of the area is forested with vegetation forming a continuous canopy of both surface and ladder fuels. The project area is heavily utilized for mining operations and to a lesser degree by recreation users.

The East Boulder portion of the inventoried North Absaroka Roadless (IRA) area 1-371 basically surrounds the project area, however, none of the project related treatments encroach into the Inventoried Roadless Area. Past management activities have occurred adjacent to the IRA and have influenced the characteristics of the "unroaded" resource. This includes the East Boulder Mine and power transmission line development, timber harvest and road construction. In the case of the East Boulder, any areas remaining of "unroaded" lands are not of a sufficient size or configuration to allow the protection of the inherent characteristics associated with an "unroaded" condition and therefore do not contain "unroaded" resource values (See Roadless/Unroaded Analysis EA, pp.3-53 through 3-54). There are no Wild & Scenic Rivers or ecologically critical areas known to occur within the analysis area boundaries. From the analysis completed, I conclude there are no unique characteristics of the geographic area that will be affected by this decision.

4. The degree to which the effects of the decision on the quality of the human environment are likely to be controversial.

Observations of past thinning, piling, and pile burning associated with fuel reduction projects on the Gallatin National Forest lead me to conclude that the effects of this decision are likely to be predictable and consistent with the conclusions reached in the EA. There is no significant professional disagreement on the scope and effects of the selected alternative on the various resources. For these reasons, I conclude that there is not likely to be significant controversy over the degree to which this decision affects the quality of the human environment.

5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

Effects of thinning in Wildland Urban Interface areas have been documented and monitored nationwide in various scientific publications. Thinning of various size classes of forested stands on the Gallatin National Forest has occurred for the past four decades with results that have been relatively consistent and predictable. Historically, pile burning has been utilized by all Federal land management agencies for brush and slash disposal and temporary roads have been constructed and reclaimed effectively. The treatment actions proposed under my decision have been used in the past and have proven effective. For these reasons, I conclude this decision will not present highly uncertain, unique, or unknown risks.

6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

My decision to thin, pile, and burn piles to reduce fuels in the East Boulder Wildland Urban Interface is project specific. The actions associated with project implementation will be monitored and success in achieving the Purpose and Need for the project will be assessed. Although successful implementation of the project could lead to future fuel reduction projects on the Forest that are similar in nature, I do not foresee that this decision establishes a precedent for any other future actions, nor does it represent a decision in principle about any other future consideration.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

The reasonably foreseeable cumulative effects of this decision are detailed in the EA, Chapter 3 for the various resources that could be affected by the project. From these analyses, I conclude that neither the effects of this decision itself, nor cumulative or linked effects of past, current, or reasonably foreseeable future actions appear likely to lead to significant cumulative impacts.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in, or eligible for listing in, the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources.

Within the East Boulder Fuels Reduction Project boundary, all areas that are considered “moderate-to-high probability for cultural resource occurrence” were surveyed by a qualified archaeologist on the 8th and 20th of July 2009. The area was previously surveyed in 1981 and 1982. Five cultural sites were known to exist within the treatment area boundaries and no new sites were found. All five of the sites have been evaluated, and are considered eligible for listing on the National Register of Historic Places.

An archaeologist and the sale administrator will properly flag off the known sites before work will begin in the site vicinity such that the site will be avoided by any ground disturbing activities. The fuel reduction actions can easily be completed and avoid the sites as long as the

operators and sale administrator know where the site is located. The proposed actions associated with Alternative 2 can be completed without any direct, indirect, or cumulative effects to heritage resources if mitigation outlined on EA, p. 2-36 is implemented. Following these mitigations will protect existing sites and will allow for modification of the project, should any new sites be found, thus allowing for dismissal of the heritage resource issue.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

My decision to proceed with implementation of Alternative 2 will not significantly affect any endangered or threatened species or their habitat. Canada lynx are listed as a threatened species under the Endangered Species Act (ESA) and the Forest Service must therefore ensure that any action it authorizes is not likely to jeopardize the continued existence of this species, or to destroy or adversely modify critical habitat [Section 7(a)(2)]. To comply with the ESA, effects of the preferred alternative (Alternative 3), which is more impactful to lynx habitat than Alternative 2, were analyzed in a Biological Assessment. My decision will treat roughly half the acreage of multi-storied snowshoe hare habitat that was proposed with Alternative 3 and the additional treatment units in Alternative 3 are at higher elevations, in cooler, moister habitat types preferred by lynx. The Northern Rockies Lynx Management Direction (NRLMD) ROD was published in March 2007. This decision amended the Gallatin Forest Plan by incorporating goals, objectives, standards and guidelines for lynx habitat management. The NRLMD contains exemptions that allow a certain amount of thinning in snowshoe hare habitat if the purpose is for fuel reduction within a Wildland Urban Interface (WUI). The Final Rule for lynx critical habitat identifies Primary Constituent Elements (PCE), which are those physical and biological features that are essential to the conservation of the species, and that may require special management considerations or protections (USDI 2009:8638). Where NRLMD standards are not strictly met for this project; exemptions for standards VEG S5 and VEG S6 are applied. These factors were evaluated in the Biological Assessment and reviewed in consultation with the US Fish and Wildlife Service. The April 1, 2010 response letter from USFWS states that the effects of the East Boulder Project (Alternative 3) would fall within the range of effects analyzed in their 1st tier biological opinion for Canada lynx and the project conforms to their incidental take statement, therefore, no 2nd tier biological opinion or further consultation is required for the project. See the lynx analysis on pp. 3-58 through 3-64 of the EA. As stated above, my selection of Alternative 2 would be much less impactful to lynx habitat than what was presented to USFWS in the BA.

The grizzly bear is also listed as a threatened species under the ESA. The project area is located outside of the grizzly bear recovery area. Grizzly bears are known to occasionally be present within the East Boulder analysis area, but have never been documented to occur in the project vicinity (i.e. along or adjacent to the East Boulder River outside the IRA). Grizzly bears typically move closest to the area during den emergence based on known spring sightings in the Deer Creek drainage, located north of the analysis area. There is very low potential for grizzly bear and human conflicts and activities associated with the planned project are not expected to increase the potential for these types of conflicts. Given the potential for impacts, however minimal, it is determined that the project “*may affect, but is not likely to adversely affect*” the grizzly bear or its habitat. All standards were considered

during project development and mitigation measures have been incorporated to address any specific standards and issues that were identified. Based on the analysis, all applicable standards in the grizzly bear amendment will be met under my decision for the project. See the grizzly bear analysis on pp. 3-64 through 3-70 of the EA.

There are no plants listed as threatened or endangered in the project area.

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

The applicable laws, regulations, and Forest Plan direction related to my decision are discussed in the EA by resource in Chapter 3 and in the Decision Notice (pp. 24-36). I find my decision to be fully in compliance with applicable laws and regulations. Further, my decision is consistent with the Gallatin Forest Plan Management Area direction for the project area.

XIII. Implementation

If no appeals are filed within the 45-day time period, implementation of the decision may occur on, but not before, 5 business days from the close of the appeal filing period. Implementation of my decision to reduce hazardous fuels and implement vegetation treatment, under the conditions of this decision, will likely begin in the fall/winter of 2010 and could continue for up to four years.

If appeals are filed, implementation may occur on, but not before, the 15th business day following the date of the last appeal disposition.

XIV. Administrative Review or Appeal Opportunities

This decision is subject to appeal pursuant to 36 CFR 215.11. Only individuals or organizations that submitted comments during the comment period may appeal. A written appeal must be submitted within 45 days following the publication date of the legal notice of this decision in the Bozeman Chronicle, Bozeman, Montana. It is the responsibility of the appellant to ensure their appeal is received in a timely manner. The publication date of the legal notice of the decision in the newspaper of record is the *exclusive* means for calculating the time to file an appeal. Appellants should not rely on date or timeframe information provided by any other source.

Paper appeals must be submitted to: USDA Forest Service, Northern Region, ATTN: Appeal Deciding Officer, P.O. Box 7669, Missoula, MT 59807; or USDA Forest Service, Northern Region, ATTN: Appeal Deciding Officer, 200 East Broadway, Missoula, MT 59802. Office hours: 7:30 a.m. to 4:00 p.m. Fax (406) 329- 3411.

Electronic appeals must be submitted to: <appeals-northern-regional-office@fs.fed.us>. In electronic appeals, the subject line should contain the name of the project being appealed. An automated response will confirm your electronic appeal has been received. Electronic appeals must be submitted in MS Word, Word Perfect, or Rich Text Format (RTF).

It is the appellant's responsibility to provide sufficient project or activity-specific evidence and rationale, focusing on the decision, to show why the decision should be reversed. The appeal must be filed with the Appeal Deciding Officer in writing. At a minimum, the appeal must meet the content requirements of 36 CFR 215.14, and include the following information: The appellant's name and address, with a telephone number, if available; A signature, or other verification of authorship upon request (a scanned signature for electronic mail may be filed with the appeal); When multiple names are listed on an appeal, identification of the lead appellant and verification of the identity of the lead appellant upon request; The name of the project or activity for which the decision was made, the name and title of the Responsible Official, and the date of the decision; The regulation under which the appeal is being filed, when there is an option to appeal under either 36 CFR 215 or 36 CFR 251, subpart C; Any specific change(s) in the decision that the appellant seeks and rationale for those changes; Any portion(s) of the decision with which the appellant disagrees, and explanation for the disagreement; Why the appellant believes the Responsible Official's decision failed to consider the substantive comments; and, How the appellant believes the decision specifically violates law, regulation, or policy.

If no appeal is received, implementation of this decision may occur on, but not before, five business days from the close of the appeal filing period. If an appeal is received, implementation may not occur for 15 days following the date of appeal disposition.

Offer to Meet. When an appeal is received under this rule, the Responsible Official, or designee, must contact the appellant and offer to meet and discuss resolution of the issues raised in the appeal (36 CFR 215.17). If the appellant accepts the offer, the meeting must take place within 15 days after the closing date for filing an appeal (i.e. 45 to 60 days from the publication date of the legal notice of this decision in the Bozeman Chronicle). These meetings, if they take place, are open to the public. For information on if, when, and where such a meeting is scheduled, please visit the following web site:

www.fs.fed.us/r1/planning/final_appeals/current_appeals_and_objections.pdf

XV. Further Information and Contact Persons

Copies of the East Boulder Fuels Reduction EA and Decision Notice are available at the Big Timber Ranger District Office in Big Timber, Montana. Copies are also available on the internet at <http://www.fs.fed.us/r1/gallatin> in the Project and Plans area.

For additional information or questions concerning this decision or appeals process, please contact Barbara Ping, East Zone NEPA Coordinator, (406)-522-2558 or myself, Bill Avey, Big Timber District Ranger at (406) 932-5155.

/s/ Bill Avey

June 4, 2010

BILL AVEY
District Ranger
Big Timber Ranger District

Date

APPENDIX A

RESPONSE TO COMMENTS

INTRODUCTION

This appendix to the East Boulder Fuels Reduction Project Decision Notice contains the agency's responses to questions and comments received during the 30-day public review and comment period for the March 2010 Environmental Assessment. Official comments regarding the project were due on April 19, 2010.

A total of 3 letters were received. Table A-1 below lists the letter number and commenter. Comments are grouped by subject matter or resource. Each comment is identified by letter number first and then by individual comment number after the hyphen (Example 1-1). The comments were transcribed as written in the comment letters with the agency response following the comment. Some comments are repetitive, so responses to these comments will refer to previous letters where that specific comment has already been addressed in this appendix. Identical comments have been grouped, showing the letter and comment numbers that apply.

Table A-1 Letters and Comments received in response to the March 2010 Environmental Assessment

LETTER NUMBER	Commenter
1	Sara Jane Johnson-Native Ecosystems Council
2	Gary Burmeister-Sweet Grass County Farm Bureau
3	Michael Garrity-Alliance for the Wild Rockies

RESPONSE TO COMMENTS

General

Comment 2-1: The Sweet Grass County Farm Bureau and its members stand firmly in support of the FS plan for fuel reduction in the East Boulder River Drainage and feel that the FS proposal will help create healthy forests, reduce wildfire threat, and protect public lands as well as private property.

Response: Thank you for your support. Collaboration with the general public and various local organizations and businesses has been an important part in the development of this project from the beginning. The project was also designed to dovetail with the recent Sweet Grass County Community Wildfire Protection Plan.

Comment 3-1: The Alliance for the Wild Rockies supports the effort to protect the escape route for the miners at the top of East Boulder Creek in case of a wildfire. Our concern is that the project proposes logging beyond what is necessary to protect the road as an evacuation route, e.g. to protect the East Boulder Road, no new road construction should be required since logging can be done from the East Boulder Road.

Response: I have selected Alternative 2 for implementation, which consists of the units that lie adjacent to the East Boulder Road (evacuation route), the East Boulder Mine facilities and powerline, and/or private residences and structures. There will, however, still be a need for a small amount of temporary roads to access the interior of the various treatment units and to keep landing piles away from the main road. Temporary road construction will be minimized to the extent possible, with the average length of temp. roads being less than .18 of a mile. These temporary roads will be closed to the public during project related activities and permanently closed, recontoured, and revegetated within one year of project completion.

Wildlife & Wildlife Habitat

Comment 1-1: The Forest needs to complete a Forest Plan Amendment to address the change in management for MA 11 and MA 12. Activities are required to maintain or enhance conditions for wildlife including featured species. This project will not do that!

Response: As addressed in the Decision Notice on pp. 24 & 25, the East Boulder project is consistent with applicable management direction associated with MA 11 & 12 so there is no need for a Forest Plan Amendment. Adequate wildlife habitat will be maintained in the project area and surrounding vicinity with the implementation of Alternative 2 to allow for increasing populations of various big game species. Winter range will be managed to meet the forage and cover needs of deer, elk and moose, with increased forage/cover ratios. Proposed treatments within MA 11 are designed to enhance winter range capability by leaving key areas untreated to retain vital cover, while at the same time increasing forage production in areas where the forest canopy is opened. The Forest Plan standards to retain 2/3 of the hiding cover associated with key habitat features, and to ensure no even-aged openings are more than 600 feet from cover, will be met by incorporating 15% to 20% untreated clump retention through unit layout design.

Road density will be managed by following the Travel Plan guideline to restrict public use on project roads during implementation and effectively close temporary roads upon project completion.

Comment 1-2: The exemption for removing critical lynx habitat as per the Northern Rockies Lynx Management Direction Forest Plan Amendment is illegal and can not be applied to this project. Removal of critical lynx habitat is a violation of the Endangered Species Act (ESA).

Response: Lynx and critical habitat are addressed in the EA on p. 3-58 (reference to Final Rule designating critical habitat for lynx), and pp. 3-60 through 3-64 (Evaluation of effects to Primary Constituent Elements; reference to Specialist Report in Project File; Direct, Indirect and Cumulative Effects to lynx critical habitat; Compliance with laws, including the ESA; and reference to the Biological Assessment and consultation with the US Fish and Wildlife Service). The Final Specialist Report, Biological Assessment and Biological Opinion for lynx and critical habitat are part of the Project File.

The proposed action would not remove critical habitat as asserted in the comment. Rather, as disclosed in the EA, proposed treatment would alter critical habitat, which may impact lynx, but would not change the designation of critical habitat, or reduce the amount of designated critical habitat within the Greater Yellowstone Lynx Critical Habitat Unit.

The Final Rule designating critical habitat for lynx (50 CFR Part 17, Federal Register, Vol. 74, No. 36, February 25, 2009, pp 8616-8702) allows for treatment and subsequent alteration of lynx critical habitat under the ESA through consultation with the US Fish and Wildlife Service. The Final Rule lists examples of activities that, when carried out, funded or authorized by a Federal agency, may affect critical habitat, and therefore should result in consultation (p. 8644).

A Biological Assessment was prepared for the East Boulder Fuels project (project file). Potential adverse effects to lynx and critical habitat were acknowledged in the BA and formal consultation with the US Fish and Wildlife Service was initiated. The corresponding Biological Opinion concluded that “the effects of the East Boulder Fuels Reduction Project are not likely to result in the destruction or adverse modification of lynx critical habitat” (project file).

Comment 3-2: Much of the logging proposed is in lynx critical habitat and would adversely modify lynx critical habitat. Please conference with the U.S. Fish and Wildlife Service on this issue. If a decision is made to log lynx critical habitat and situation 1 grizzly bear habitat, this will adversely affect lynx and grizzly bears and would require an EIS rather than and EA

Response: A Biological Assessment (BA) was prepared for the East Boulder Fuels project (Project File). The determination of effects in the BA for grizzly bear is “*may affect, but is not likely to adversely affect*”. The East Boulder project area is outside of the GYBE grizzly bear recovery zone but within the grizzly bear distribution area and occurrence of grizzly bears is rare and infrequent due to the amount of regular traffic associated with the East Boulder Mine and private residents in the corridor. The US Fish and Wildlife Service has reviewed the BA and on April 1, 2010 issued a Biological Opinion (BO) that concurs with the determination that the project is not likely to adversely affect grizzly bears and project related impacts would be

insignificant. Therefore, pursuant to 50 CFR 402.13(a), a formal consultation on this species is not required.

Potential adverse effects to lynx and critical habitat were acknowledged in the BA and formal consultation with the US Fish and Wildlife Service was initiated. In the Rocky Mountain Lynx Amendment first-tier Biological Opinion, fuels related projects conducted within the wildland urban interface (WUI) fell under exemptions from amendment standards VEG S1, S2, S5 and S6. The US Fish and Wildlife Service reviewed the BA for the East Boulder Project and finds that the effects on lynx fall within the range of effects analyzed in their first-tier BO, therefore no 2nd tier BO is required. The corresponding BO from US Fish and Wildlife concluded that “the effects of the East Boulder Fuels Reduction Project are not likely to result in the destruction or adverse modification of lynx critical habitat” (Project File).

Comment 1-11: The impact of pre-commercial thinning on various wildlife species was not evaluated.

Response: The only area of regeneration or existing plantation that could be considered to be pre-commercial thinning is in Unit 7B. The area to be thinned is adjacent to the road and within 100’ of the power line (DN p. 14). The estimated acreage of this thinning is less than one acre (DN, Table 1, p. 10). The prescription for this area is based on the fuel modeling and was designed to keep potential fire on the ground, keep any flame front from affecting the power line, and provide safe egress for public and firefighters along the main road. Because of the proximity to the road and power line and the very small acreage affected it was determined that no impact to any MIS would occur.

Comment 1-12: The impact of commercial thinning was limited to goshawk nesting habitat. Since foraging habitat is key to productivity, please evaluate current and projected foraging habitat as per Reynolds and others.

Response: Foraging habitat was addressed in the EA (p. 3-81) and in the MIS specialist report (Project File). The analysis was limited because foraging habitat is not limited in the East Boulder drainage. The entire project area before and after treatment will represent good foraging habitat and all of the forested acres present in the drainage adjacent to the project represent good foraging habitat.

Comment 1-13: Goshawk is an MIS species, so why is the analysis limited to nesting habitat. Please evaluate the needs of various species identified as S3 by the Montana Heritage Program. Many species require dense older habitat that will be removed by fuel treatments.

Response: The analysis for the goshawk was not limited to nesting habitat. However, the focus of the analyses was on nesting habitat because this is generally the limiting factor for the species to be present. There is abundant foraging habitat throughout the East Boulder drainage and project related activities would actually create additional foraging habitat. The Forest Service does not evaluate impacts to all Montana sensitive species. We are required only to evaluate impacts to those species that occur that are on the Regional Forester’s sensitive species list for a specific Forest. The small scale of the project (approximately 500 acres of mechanical treatment) will limit impacts to those species that require older dense habitat. Very little of this

type of habitat will be affected by the proposed project. In addition, there is abundant older and dense forest habitat adjacent and nearby to the proposed treatments that will remain and is not suitable for fuels treatment because of roadless status or topographic limitations.

Comment 1-14: It is not clear how the proposed downed wood requirements will meet the needs of pine marten? What is this amount based on and why does the agency assume it will be effective?

Response: The focus of the project related treatments will be along the East Boulder Road corridor and/or adjacent to the mine facilities and private residences based on the selection of Alternative 2. Local information indicates that pine marten present in the East Boulder drainage avoid the road corridor and are rarely seen or documented to use the area of these proposed treatment units. The amount of proposed downed wood to be left in the treatment units is based on models that were run to determine potential fire behavior and then adjusted for local knowledge and expertise.

Comment 1-15: The mitigation for big game winter range was extremely vague. What does 15-20% of the unit mean for hiding and thermal cover? Does the agency have a minimum size? It is also not clear what the current level of hiding and thermal cover is on the winter range. This is required by the Forest Plan which says that management actions maintain habitat capability for big game.

Response: The wildlife specialist report discusses the effect of the vegetation treatments on both hiding and thermal cover. It provides quantitative estimates of existing and post-treatment amounts of each type of cover based on a worst case scenario assumption. Based on this assumption, hiding cover would be reduced by approximately 5% of the total currently available in the project area. Summer thermal cover would be reduced by approximately 12%, although the project area is not considered important summer range for any of the focal big game species. Only about 2% of existing winter thermal cover would be affected. The remaining treatment would involve thinning in stands that are open and not providing thermal or hiding cover for big game. The report also provides clump retention specifications by size and tree species (on average minimum of 1/10 acre for spruce and fir dominated clumps, and minimum of 1/3 acre for lodgepole dominated clumps).

Comment 1-16: Document any claims for habitat improvement regarding winter range with current science and monitoring of past logging activities.

Response: Treatment within MA 11 is designed to enhance winter range capability by leaving key areas untreated to retain vital cover, while at the same time increasing forage production in areas where the forest canopy is opened. Winter range will be managed to meet the forage and cover needs of deer and moose, with increased forage/cover ratios under the selected alternative to 31:69. This moves toward meeting Thomas' (1979) recommended optimum (60:40) for deer and elk. Woody shrub production would be increased in some units, which would provide additional forage for moose. Paugh (2009) suggests that deer activity within these new treatment areas would be similar to deer use in the older cutting units where forage has actually been enhanced. Also see the Effectiveness section identified with wildlife mitigation.

Comment 1-17: What is the current use by wintering big game species within previously logged winter range in the project area?

Response: As indicated in the affected environment descriptions in the EA, past harvest did occur adjacent to some of the proposed treatment units which were thinned, cut or partially cut. Cover is not limited in the project area, with approximately 65 percent of the area currently dominated by dense conifer habitat at various stages of succession. According to Paugh (2009), the past clearcuts in Twin Creek now provide good mule deer winter range and summer forage. The wildlife specialist report states that forest structure along Twin Creek, Wright Gulch, and Lewis Gulch, particularly the lower reaches near the confluence with East Boulder River, provide winter travel corridors and resting areas for deer, while the river bottom produces good browse material for winter forage.

Comment 1-18: What will be the cumulative removal of big game thermal cover and hiding cover on winter range from past and planned logging?

Response: Cumulative effects were discussed in the wildlife specialist report. There was no quantitative calculation of cumulative removal of cover on winter range. Stream reaches like Twin Creek, Lewis Gulch and Wright Gulch with a heavy conifer canopy cover makes it an easy place for deer to move around during the winter. The riparian corridor will be left untreated so that deer can continue to move through a timbered canopy. Paugh concluded that with the identified mitigations the winter range would not be affected in a way that would impact mule deer populations. Also see response to Comment 1-15.

Comment 1-19: Please provide a map showing the location of big game winter range.

Response: There is a map of winter range in the Project File that was created during the original Forest Plan development from which management standards for MA 11 was based. The area shown as winter range closely coincides with Map 5 depicting MA 11.

Comment 3-4: Please explain how the project will meet the GNF Forest Plan Standard to maintain 2/3rd hiding cover associated with all key habitat components and include a map and discussion of cumulative impacts of past clearcutting.

Response: The Forest Plan standards to retain 2/3 of the hiding cover associated with key habitat features would be met through unit layout design. Mitigation calls for layout design that would maintain 15-20% of forested cover in undisturbed clumps left so that no created openings are more than 600 feet from cover and a 50-foot untreated buffer on each side of Wright Creek, Lewis Creek and Twin Creek. Map 8 and 9 in the EA displays past harvest and fire activity in the East Boulder project area. A discussion of cumulative effects of this activity to hiding cover is in the wildlife specialist report. It indicates that while timber harvest has occurred in the past, it is at a relatively small scale compared to the effects of wildfire in the area. Natural events and vegetation management such as timber harvest and prescribed burning typically produce habitat changes that are temporary in nature. Habitat alterations can affect winter range conditions and reduce the availability of hiding and thermal cover, which is not limiting in Hunting District (HD) 560, and can also increase winter forage availability.

Comment 1-20: Please provide a map showing proposed retention patches of hiding and thermal cover, as well as retained big game movement corridors.

Response: According to the wildlife specialist report and mitigation section of EA (page 2-29-30), undisturbed clumps and riparian buffers left as retention patches made up of forested cover will constitute 15-20% of the units within Management Area (MA) 11. The report also states that it is difficult to estimate the amount and types of cover that would be left in each treatment unit. The analysis assumed that all types of cover (hiding or thermal) would be affected and disclosed these quantitative estimates. The riparian areas are the most likely movement corridors and they will be left untreated. The retention patches will be designed in the field based on such factors as topographic features, species with varying levels of canopy cover, and opportunity to meet all required mitigation. This makes a map somewhat infeasible at this time.

Comment 1-21: The management policy appears to be that snag management will be attempted but not guaranteed. The agency can't use existing conditions outside of units as mitigation. The agency must define how snag losses from past and present logging does not constitute significant habitat loss in the East Boulder drainage.

Response: Management of snags is guided by Snag Management Direction, Amendment No. 15 to the Forest Plan, which was identified as standard operating procedures in the wildlife specialist report and as mitigation in the EA, p. 2-30. The mitigation also includes recommended project design criteria from the wildlife specialist report. This mitigation and additional guidance specifically refers to meeting snag standards within units. The reference to conditions outside units provides context for the snag resource as each individual unit is not of sufficient size to accommodate the life history of any particular snag dependent species. The methodology section in the wildlife specialist report describes four sources of data that provided this context across the landscape. These sources were consulted to evaluate snag abundance and distribution within the project area and surrounding vicinity.

Comment 1-22: The EA noted that snags are few in the proposed logging units. How can 3 snags per acre be retained?

Response: Snag retention will be met through project design criteria. The Forest Plan standard is not 3 snags per acre but rather 30 snags per 10 acres. The objective of the snag management direction states that distribution should vary with some snags left on the edge, interior, or in clumps and with an emphasis of snag retention in riparian areas, ridgetops, openings and areas of natural mortality. The standard requires that if there is not a sufficient number of existing snags to meet these criteria the largest available dead trees will be left. Early signs of insect infestation make it likely that snag availability will increase in proposed treatment units before project implementation is complete. According to Bollenbacher et al (2008), from 2000-2007 more than 300,000 acres were affected by fire, more than 5 million acres were affected by insects, and less than 45,000 acres were harvested or thinned. They concluded that due to the ongoing and predicted future increases in bark beetle epidemics and fire events, it is expected that there will be increasing snag densities in all diameter classes over time. The snag standards are not applicable in the hand treatment units as the prescriptions do not call for removal of any trees >8" dbh, however, they would meet the requirements for providing replacement trees.

Comment 1-23: Given that many snags are lost during logging , how many snags per acre will need to be left to ensure 3 are left?

Response: See response to Comment 1-22.

Comment 1-24: Is there any size requirement for snags to be left? What are the goals for snag sizes to be retained?

Responses: Snags are defined in the Gallatin Forest Plan as standing dead trees at least 18 feet tall and at least 10 inches in diameter at breast height (dbh) and thus any snag left must meet this requirement at a minimum. The objective of the snag management direction states that large, broken-topped trees with existing cavities are preferred but that both hard and soft snags of different species and varying diameters should be retained. As pointed out in the wildlife specialist report (Project File), most cavity nesting species prefer large diameter snags while some species select smaller diameter trees for nesting and foraging, making leaving a range of snag conditions desirable. As referenced in the wildlife specialist report, the Estimates of Snag Densities for Eastside Forests in the Northern Region (Bollenbacher et al. 2008) considered three classes of snag size in the current snag analysis that could be considered in management but this is not required direction.

Comment 1-25: How will thinned units provide 3 snags per acre in the future? If not doesn't the Forest Plan require snags over time?

Response: See response to Comment 1-21 and 1-22. The objective of the snag management direction states that replacement trees should be located so that they are protected from wind throw. Project design criteria, including clump retention and remnant trees in thinned areas, will meet the Forest Plan requirement for live snag-replacement trees. As mentioned in response to Comment 1-22, early signs of insect infestation make it likely that snag availability will increase in proposed treatment units before project implementation is complete and that increasing snag density in all diameter classes over time is expected.

Comment 1-26: What is the expected reduction in snag recruitment rate after logging?

Response: The expected reduction in snag recruitment rate after logging was not quantified. The Forest Plan snag standards direct the amount of snags to be retained, not what should be removed so the effects discussion did not focus on that. The wildlife specialist report qualitatively described the effect of the proposed treatment on the snag resource and provided project design criteria to ensure snag management direction would be met.

Comment 1-27: How will the agency mitigate the absence of snags in existing harvest units?

Response: The Forest Plan Snag Management Direction (Amendment No. 15) states that if there are not sufficient dead trees meeting this size criterion, the largest available dead trees will be left as snags. The goal of this direction is that sufficient habitat be maintained to accommodate the needs of cavity nesting birds and other snag dependent species. We feel that the analyses provided by Novak (2009) and Bollenbacher et al. (2008) indicate that the project

area and surrounding vicinity have adequate snag abundance and distribution. Also see response to Comment 1-25.

Comment 1-28: The current level of snags in unlogged areas in the East Boulder is double the FP standard. What evidence does the agency have that the standard is reasonable and effective in maintaining wildlife within logged habitats?

Response: The Forest Plan snag management standard is the current direction for retention of dead and live replacement trees. Efforts such as the Bollenbacher et al (2008) will continue to provide information and analysis for considerations of snag management over time. They suggest that snag management may not need to be applied to every acre within a treatment area, but rather, the average density of snags within the total treatment unit acreage or even the entire project area due to their naturally clumpy distribution. These efforts are also helping to understand the inherent relationship between biophysical and climatic factors suggesting that snag analysis and management plans pertaining to snags should be formulated by geographic area.

Comment 1-29: The Gallatin NF lacks a MIS for snags, so how does the agency know the standard is working? What is the basis for this as per monitoring so that the application of this standard in logged habitat should continue?

Response: The standard was incorporated into the Forest Plan to provide for snag dependent species. Regional surveys for Neotropical Migratory Birds to establish base line trends have been conducted. These surveys included detections for many different snag dependent species such as hairy woodpecker, northern flicker etc. The trend data have not indicated that these species are in jeopardy or that their populations are declining regionally. In addition, large fires on this unit and the Gallatin National Forest in the past several years have created thousands of acres of snag habitat directly adjacent to the project area and across the Forest.

Comment 1-30: If there is no snag standard in logged habitats, how can the FP snag direction be considered a proxy for snag associated species?

Response: There is a snag standard for activities in conjunction with the timber harvest program. See response to Comment 1-21, 1-22, 1-24. Also see response to Comment 1-29.

Comment 1-31: If the FP allows for reduction in snag habitat in the short and longterm, the FEIS for the plan is misleading. An FP Amendment is required to address the actual impact of timber and fuels management on snags.

Response: No Forest Plan amendment is required because the treatments, with mitigation and additional design criteria built into the prescriptions in the EA, will meet the Forest Plan. The East Boulder Fuels Reduction Project meets the Forest Plan Snag Management Direction which itself was an amendment (No. 15) to the Forest Plan that increased the density of leave snags. The original Forest Plan direction was based on work done by Thomas (1979). New scientific analysis continues to provide better information for snag management to meet the needs of snag dependent species.

Comment 1-32: How is firewood removal affecting snag availability now and pot-logging? What mitigation will address this problem?

Response: The wildlife specialist report states that firewood gathering has contributed to the reduction in the amount of snags currently present. It also suggests that thinning could increase the visibility of snags left behind after project implementation, making them more vulnerable for removal by firewood cutters. Project design criteria are meant to retain snags away from easily accessible areas. As a part of project layout, snags will be marked to leave and tallied by unit. No firewood cutting signs will be posted throughout the sale area to ensure that the snags will not be removed for firewood. If firewood cutting becomes a problem after these timber sale signs are removed (following completion of project activities), wildlife tree tags will be placed on snags that are visible and easily accessible from the East Boulder Road (DN pp. 7 & 27). It is possible that some additional firewood cutting could still occur in the future as the current mountain pine beetle infestation becomes more widespread in the drainage; however, large fires on this unit and the Gallatin National Forest in the past several years have created thousands of acres of snag habitat directly adjacent to the project area and across the Forest.

Comment 1-33: How will the old growth management strategy for this area promote viability of the goshawk and pine marten (MIS species)?

Response: Based on surveys that were conducted throughout the proposed project area in the summer of 2009, there is no evidence that either goshawk or pine marten are currently using the proposed treatment areas as primary habitat for either reproduction or foraging. In addition, there is abundant habitat outside of the proposed treatments in inventoried roadless areas that offer foraging and reproductive habitat for both of these species that will likely never be managed.

Comment 3-17: The Forest Service's failure to monitor its old growth indicator species violates NFMA. The Forest Service's failure to provide population monitoring data for its old growth indicator species also violates NEPA, because it failed to take a "hard look" at the populations of indicator species in the area.

Response: The Forest Service believes that adequate monitoring of old growth indicator species and their populations were addressed in the analysis. The results of surveys for various wildlife species (Project File) indicated that few, if any, of these species are resident or even commonly documented within any of the proposed treatment units.

Comment 1-36: Please map key habitat components for big game in the project area.

Response: Key habitat components for elk were mapped using the Montana Fish, Wildlife, and Parks (FWP) habitat ranges website. Habitat components were also mapped using TSMRS models as identified in the wildlife specialist report. Map 5 of MA 11 closely coincides with winter range for deer and moose. Additional habitat components were identified during field reconnaissance of harvest units. Maps and field visit data are located in the project file.

Comment 1-37: Please identify habitat effectiveness for big game within MA 11 habitat during logging.

Response: The wildlife specialist report described the effects of logging operations on big game. The majority of the logging would occur during the winter. Elk do not winter in this area and would not be affected. Deer and some moose winter in the area and may be present in the area during logging operations. According to Paugh (2009), snow compaction from harvest activities would facilitate deer movement in treatment units allowing them to access lichen on felled materials, a temporary winter food source provided by logging activity. While harvest operations are active, deer may use the area at night, adopting a similar habitat use pattern they use to avoid disturbance from the heavy volume of mine traffic during the day. The report also disclosed that disturbance factors could ultimately result in displacement of big game animals from the project area, at least for the duration of project activities. However, the project roads will not be open for public use and project design criteria call for buffers along riparian areas to retain dense canopy cover along important winter travel routes and foraging areas for deer and moose so displacement is minimized. In addition, prescriptions for harvest units are designed to maintain approximately 15-20% of forested cover in untreated clumps that exhibit hiding and/or thermal cover characteristics. Neither the disturbance impacts, nor habitat alterations would have detrimental impacts on big game populations.

Comment 1-38: Please identify and map big game security pre and post-project using the entire definition by Hillis et al

Response: The amount and distribution of security habitat was evaluated relative to big game vulnerability. Hiding cover was also evaluated as it is a site-specific component of security. Secure habitat for elk was defined by Hillis et al. (1991) as areas at least 250 acres in size and at least one half mile from an open road. These authors recommended that at least 30 percent of an analysis area should be comprised of secure habitat in order to mitigate human hunting impacts. Christensen et al. (1993) also recommended considering road access and juxtaposition of secure habitat to evaluate and manage elk vulnerability. For this project, GIS technology was used to evaluate big game security relative to road access. This exercise concluded that under the selected alternative, secure habitat will be reduced to about 45% in the project area, which is well above the minimum of 30% recommended by Hillis (1991). Security cover is abundant within the project area and surrounding vicinity.

Comment 1-39: The mitigation for raptor and owl nests requires that the nests be located. What is the detection probability of the surveys that were done for the project for these species?

Response: Detection probability is very high because extensive goshawk, snag, wildlife habitat, and stand exams were conducted throughout the project and proposed treatment areas in the summer of 2009. Extensive information regarding survey locations, methods, and results is documented in the Project File. Mitigation requires that any nests found were to be visually identified during surveys and/or during unit marking. Any nest located was documented and flagged.

Comment 1-40: If nesting habitat for vulnerable and sensitive species has to be located first, what levels of surveys does the agency complete to ensure that nesting habitat isn't destroyed?

Response: The Forest Service has applied concentrated and repeated efforts to identify nesting habitat for sensitive and vulnerable species within the proposed treatment units. Copies of these surveys are included in the Project File. We applied the best science and survey techniques at our disposal to determine if these species were present and/or vulnerable to the proposed treatments. We have incorporated specific mitigation measures to further prevent adverse impacts to these species.

Comment 1-41: What monitoring data is currently available on the GNF to demonstrate that past and planned harvest will not cause significant declines in goshawk and its habitat over historical conditions?

Response: There has not been specific monitoring data collected and analyzed to determine impacts of past harvest across the Gallatin National Forest. Most data collected in the past has been at the project level; however, nest sightings and detections have been documented and compiled into a table. The Gallatin National Forest lead wildlife biologist is currently in the process of putting together a contract to verify nests, monitor goshawk use, and describe vegetative conditions surrounding documented goshawk nests and detection areas found on the Forest over the years. This monitoring work is funded and the contract will be awarded and completed in the summer of 2010.

The Northern Region has conducted region wide studies that have demonstrated that past harvest has not caused any significant declines or habitat occupancy by goshawks (Samson 2005). The Northern Goshawk Working Group finalized the Northern Region Overview, Key Findings and Project Considerations (May 2007). The purpose of this document is to provide Region 1 field units with the existing state of knowledge about the northern goshawk and its habitat needs and a consistent approach to analyze available goshawk habitat and other management considerations for use during the environmental analysis process. The Gallatin National Forest is in the process of putting together a contract to monitor use, and vegetative conditions surrounding documented goshawk nests found on the Forest over the years. This monitoring work will be completed in the summer of 2010.

Comment 1-42: Please use the FP definition of hiding cover to evaluate project and cumulative impacts.

Response: The wildlife specialist report references the Forest Plan definition of hiding cover. The methodology for how hiding cover was analyzed was provided in detail. Explanation and references and estimates of accuracy were provided for how stand age and canopy cover were used as a surrogate for horizontal structure (i.e. cover) based on the relationship between these factors and bole size plus stem density (Smith 1987). The TSMRS database was used to estimate the availability of cover based on best strata codes that reflect dominant tree species, size class, and canopy cover. Additional input was collected in the field to evaluate existing vegetative cover conditions. The analysis indicated that hiding cover would be reduced by up to 194 acres, which equates to roughly 5% of the available hiding cover in the project area. Under the selected alternative, at least two thirds of the hiding cover associated with foraging habitat would

be maintained within the project area through retention of dense patches of trees within treatment units, as well as by existing cover adjacent to treatment areas. The cumulative effects section concluded that cover is not a limiting factor for big game in HD 560.

Comment 1-43: The road density standard was deleted through the Travel Plan Amendment without any analysis of impacts to wildlife. This deletion therefore violates the NEPA and NFMA.

Response: The Gallatin Forest Travel Plan EIS and ROD made decisions on all motorized routes based on an in-depth analysis of big game vulnerability and security cover. The Record of Decision for the Travel Plan identified which motorized uses would be allowed such that a road density standard becomes moot. The HEI level is now fixed and the actual numerical level is final based on the analysis and decision made for the Gallatin National Forest Travel Plan. The issue of both motorized and non-motorized transportation routes was addressed in detail in the Gallatin National Forest Travel Management Plan EIS, including cumulative effects of potential vegetation management projects. Any proposed work associated with the East Boulder vegetation treatment project is consistent with the Gallatin Travel plan decision.

Comment 1-44: Deletion of the original FP standard for location of roads in MA11 to avoid important wildlife area was not evaluated at the Forest level so the amendment violates the NEPA and NFMA.

Response: See response to Comment 1-43.

Noxious Weeds

Comment 1-3: The impact of this project on the spread of noxious weeds was not definitive; the long-term impacts of this proposal need to be directly quantified so the public can understand what an “increase in noxious weeds” means for the landscape, as well as the Forest as a whole. We request that the impact of past logging projects in the East Boulder be fully defined, as well as the impact of the Main Boulder Project on weeds.

Response: The EA describes in detail the potential impacts and cumulative impacts that are likely as a result of implementation of the proposed project (EA, pp. 3-24-35). Long term impacts are subjective and may differ as described in the EA (EA 3-34) depending on the quality and extent of treatment on intermingled private lands within the corridor in conjunction with annual treatment of weeds on Forest Service Lands. Past logging projects on Forest Service land were described in the EA (p. 3-34). Most of the past logging occurred in the 1980's and did not result in new weed infestation. The evidence suggests that noxious weeds established in the drainage in conjunction with the new road, power-line and East Boulder Mine facilities construction in the early to mid 1990's. The Main Boulder Fuel Reduction Project EIS addressed the potential impacts of noxious weeds in detail and mitigations were incorporated to minimize potential impacts. Most of these measures have been successful in limiting the spread of weeds into treatment areas. The areas that have seen weeds expand are generally areas that had existing noxious weeds that were disturbed or spread onto adjacent disturbed ground. All of these populations are being treated annually and aggressively.

Comment 1-4: Please define why expanded noxious weeds due to the proposed project will be controlled, since to date weeds in this project area have not been controlled. What is the agency going to do differently that will now solve this serious problem?

Response: Existing populations of noxious weeds will continue to be treated annually. In addition, any new noxious weed populations will be monitored and treated. Mitigation measures were designed to limit the potential spread of noxious weeds in treatment units. These measures will be incorporated into the plan of operations for the project. We have also coordinated for this project and annually with the Stillwater Mining Company and Park Electric power company, to treat noxious weeds on their permit areas and power line corridors located in the drainage. Furthermore, the selection of Alternative 2 would reduce the exposure of areas that are currently noxious weed free (Lewis Gulch) and concentrate fuels treatments and subsequent weed treatments along the main road corridor where existing known weed populations are already present.

Comment 3-24: The FS has no idea how the productivity of the land been affected in the project area and forest wide due to noxious weed infestations, nor how that situation is expected to change. However, the FS never cites results of successful of weed treatments on the GNF, that have been proven to significantly reduce noxious weed populations over time, or prevent spread. This is an ongoing issue of land productivity for which the FS is in violation of NFMA.

Response: The EA describes in detail the potential impacts and cumulative impacts that are likely as a result of implementation of the proposed project (EA p 3-24-35). There have been numerous successful treatments across the Forest and on the District. Annually, the Forest treats approximately 4,000 acres and the District treats 1,000 acres. The success of these treatments is based on targeting high priority weed species (spotted knapweed, leafy spurge, etc.) and reducing the density of populations and potential vectors of spread. We also monitor our weed treatments annually to measure success. Complete removal of noxious weed species is very difficult. Annual treatments must be and are repeated for several years because the seeds of most species remain viable in the seed bank for many years after treatment. Given the limited funding available annually, the Gallatin National Forest has been very successful in limiting the spread and density of weed populations and preventing establishment of new populations.

Fuels

Comment 1-5: Baker (2009) in his book on fire ecology of the Rocky Mountains notes that large scale fuel reduction projects like the East Boulder are unrealistic because the chances that a fire will occur in the treated area in the next 10-20 years is extremely remote. After that time, new treatments would be needed making this fuel reduction effort extremely expensive and ineffective use of taxpayer dollars. Please discuss this problem in your analysis.

Response: It is agreed that it is unlikely that a fire could be predicted to start inside of the proposed treatment areas of the East Boulder Fuels project. There exists no scientific methodology that can accurately predict the future location of a given fire start, therefore a fire is just as likely to start in the treated areas as to not. That being said, the intent of the project is not to reduce the probability of a given start. Instead, the project was designed to meet the criteria of

reduced fire behavior within the treatment areas. This reduction in fire behavior would provide for survivable areas for both responding fire management resources, while allowing opportunity for civilians to exit the area and not be over run or cut off from the exit path.

Coincidentally, on May 15, 2010, there was an active fire that started within the proposed treatment areas adjacent to the powerline. A tree was blown into the powerline and caused an ignition. Luckily it was May and the week before the area had 8 inches of snow on the ground so there was remnant moisture and the fire start was quickly reported. As it was, the heavy fuels burned fairly actively over 4 acres before FS personnel were able to gain control and extinguish the fire.

Comment 1-6: There is no information in the EA regarding long-term requirements and costs for fuel management activities in the proposed treatment areas. What will the agency do to control new fuel ladders and what are the long-term costs of such?

Response: As stated in the Environmental Assessment, the proposed treatment effectiveness is expected to remain valid for approximately twenty years. There is no mention of maintenance beyond that point due to the variable successional pathways treated areas are expected to experience within that time period. It is however, recognized that long-term maintenance will be required to ensure the desired level of fire behavior characteristics remain acceptable. Given the expected time for the results to remain valid in combination with acceptable lifetime of a NEPA document (approximately 10 years), a new analysis would be required to determine effects at that future time. Therefore, any maintenance, or cost associated to that maintenance, that would be required is outside the scope of this analysis document.

Comment 1-7: There is conflicting information available regarding the effect of forest thinning on reducing fires. It is possible that some fire potential will be increased, including in old-growth stands after thinning. How does the agency determine which science is most relevant?

Response: I agree that there is conflicting information regarding the effects of forest thinning on reducing wildland fires. However, this project is not aimed at reducing fires, but it is rather centrally focused on reducing un-survivable fire behavior characteristics, which would allow affected individuals to exit the area and firefighters to fight the fire safely. The project goes further than creating “safe areas” to ensure that if said individuals exit route were to become blocked; fire behavior characteristics would be reduced to level that would allow them to seek refuge and survive. As previously stated in Comment 1-5, because there is no existing methodology to determine potential for fire starts in a given area, it is illogical to conclude there is a higher potential for fire occurrence in a treated or untreated stands. Intuitively, once an old growth stand has had the understory vegetation manipulated to the point that the crown is no longer become available to burn, through the removal of “ladder fuels”, the fire would be restricted to a surface fire and would burn with much less intensity.

Comment 3-5: Published scientific reports indicate that the logging prescription proposed by the Forest Service for the East Boulder Creek area will actually increase fire severity -- not reduce fire severity – as assumed by the Forest Service. Because this issue is the central underlying theme that is critical to support the proposed logging project, the Forest Service

must candidly disclose, consider, and fully discuss the published scientific papers that analyze whether commercial logging is an effective means of fire suppression, not just reliance on models. Not doing this is a violation of NEPA, NFMA, the APA, and the Forest Plan. At a minimum the FS needs to disclose and discuss the findings of the following studies:

- Raymond, Crystal L. & David L. Peterson. 2005. *Fuel treatments alter the effects of wildfire in a mixed evergreen forest, Oregon, USA*. Canadian Journal of Forestry Research 35: 2981 – 2995; and
- Odion, Dennis C., Evan J. Frost, James R Strittholt, Hong Jiang, Dominick A. Dellasala, Max A. Moritz. 2004. *Patterns of fire severity and forest conditions in the western Klamath Mountains, California*. Conservation Biology 18:4: 927-936.

Response: The reduction of fire effects is a reduction of intensity not severity. The intent of this project operates under the premise that modification of existing surface fuels and canopy structure to promote survivability is needed along the existing road corridor and along other essential infrastructure developments for public and fire fighter safety. Severity of a given fire was not used as a variable to determine the effectiveness of the treatment, due to the overarching purpose and need of both public and fire fighter safety. It is agreed that if the intent of the project was to reduce mortality in residual trees following the proposed treatment and that fuel treatments of this kind will be most effective if both ladder and surface fuels are treated (Raymond 2005). However, as it pertains to this project, this is not the case.

Odion 2004 (p. 935) states “In a potential solution to balancing the goals of human protection and conservation, modification of the edges of the built up environment to slow or stop fire has been emphasized”, which is what the East Boulder Fuels reduction project is intended to do.

As for utilizing scientific published research, there exists conflicting information regarding the effectiveness of thinning treatments. Most of the published literature on this subject is based on the premise of creating forested stands that are resilient to fire effects and result in lessened post-treatment mortality. Fire severity was not used to determine effectiveness of this project. Fire intensity, as a matter of survivability, was used in the development of the desired condition. Furthermore, the best available science to determine and disclose the effect of the proposed treatment lies with modeling research, much as the models used in this project. Both NEXUS and Farsite, the models used in this fuels analysis, have extensive peer reviewed scientific publications in which the validity of the models are brought into question and then tested in a laboratory setting.

Comment 3-6: The current fuel/fire hazard situation on land of all ownerships within the WUI (at least the WUI that’s relevant to this area) must be displayed on a map. More importantly, the fuel/fire hazard situation post-project on land of all ownerships within the WUI must also be displayed on a map.

Response: Current fuel/fire hazard situation on all ownerships is not applicable to the design of this project, because the scope of this project is limited to the National Forest System Lands. The current fuel conditions, on National Forest System Lands, are disclosed within the fuel specialist report in the EA in terms related to Scott and Burgan’s Standard Fire Behavior Fuel

Models. As for other ownerships, the Forest Service cannot effectively control or enforce standards for private citizens to manipulate vegetative conditions to meet a desired condition on their private property.

Comment 3-7 The public at large, and private landowners, must understand the implications of the long-term efforts to maintain the alleged safe conditions, including the amount of funding necessary, and the likelihood based on realistic funding scenarios for such a program to be funded both adequately and in a timely manner.

Response: As stated in the Environmental Assessment, long-term efforts to maintain the post-treatment condition would most likely be needed in approximately twenty years. Since future funding mechanisms that far into the future are difficult to determine, any necessary maintenance would need to be re-analyzed at that time to determine costs and effects in another future decision document.

Comment 3-8: Please clearly disclose which treatment units are for fuel reduction and which are to deal with the alleged “forest health” problem(s).

Response: None of the treatment units were designed to meet objectives solely related to forest health issues, although some will benefit from treatment. All units identified within the various alternatives were selected based on location to existing roads, infrastructure, and accessibility to the treatment areas. There were additional areas within the project area that also would have greatly reduced and effectively changed fire behavior characteristics, which would further enhance the outcome of the project. However, these areas are untreatable, due to steep slopes, would require extensive road construction and/or would produce greater amounts of soil disturbance, thus were determined to be infeasible and subsequently dropped from the design package.

Comment 3-9: The EA fails to deal lucidly with the hazardous fuels issue on the appropriate landscape scale. The EA only discusses fuel conditions in the areas proposed for treatment, yet wildland fire operates beyond artificial ownership or other boundaries. The EA fails to answer a fundamental question: Will the fuel reduction activities be in any way significant, when one of any number of potential fire scenarios plays out on the land in the foreseeable future?

Response: It's agreed that wildland fire and fire spread is not restricted by land ownership. This underlying premise perpetuates the complexity of fire management in all federally held lands. Furthermore, it's agreed that fire effectively operates differently in different vegetative types and elevation zones within the area. The intent of the project is not to alter or reduce these fire mechanics within the larger landscape, but rather to reduce undesirable fire effects along existing infrastructure and existing travel routes to promote safety for both public and responding fire management resources.

Comment 3-10: The EA also fails to deal with the fuels issue on the appropriate temporal scale. The EA basically theorizes fire behavior at some short-duration fixed time period following treatment (ignoring the heightened fuel risk due to the logging activities, by the way) but doesn't consider the obvious fact that vegetation response to the proposed

activities will be rapid in the understory, and also significant for smaller tree growth in the years following treatment.

Response: The temporal scale of the project was analyzed for the timeframe that the post-treatment effects are expected to remain valid. That very duration is theorized and is based on expected typical responses in similar vegetative types. That being said, it is outside the scope of this analysis to presume what future treatments will be needed. If determined in the future that further treatments are required to maintain the desired conditions, another analysis document will be produced in conjunction with another decision.

As for heightened fuel risks associated with the selected management tool to achieve the objective, all fuel (slash) produced through the management activities will be removed, piled, and burned following the management activity, subsequently reducing the fuel loadings to acceptable levels. It is expected that following this activity, forbs and other understory vegetation will respond with new growth. It is also agreed that this new growth will be susceptible to fire. However, the intensity of a fire burning in these newly established fuel beds will be much less than the existing vegetative structure. Based on the expected reduction in intensity, the overall result will allow for increased public and fire fighter safety.

Comment 3-11: And since this “fuel reduction regime” was not a planning scenario dealt with in sufficient detail (if at all) during Forest Plan development, both the project-level and programmatic ecological and economic costs and impacts go unexplained and undisclosed. The Gallatin NF must disclose to the public just how much of the Forest is considered to be likewise “out of whack” in alleged “forest health” terms and more importantly, disclose how much of the Forest is to be treated for fuel reduction in a manner that emphasizes fuel conditions over native ecological processes. Consider and discuss Hayward 1994, Huffet al 1995, Della Sala et al 1995, Sierra Nevada Ecosystem Project 1996 “Final Report to Congress.

Response: While it is likely that a revised or amended Gallatin Forest Plan will include (or at least consider) additional goals and objectives for hazardous fuels reduction, the current Forest Plan does contain management direction supportive of the East Boulder Project in addition to the management direction provided through the National Fire Plan, Healthy Forest Restoration Act of 2003, Sweet Grass County Community Wildfire Protection Plan, and the East Boulder Watershed Risk Assessment, as discussed on pp. 1-1 through 1-6 of the EA. Refer to standard 14(1) on page II-28 of the Forest Plan which states "Treatment of natural fuel accumulations to support hazard reduction and management area goals will be continued." Secondly, the decision for this project will not [*did not*] rely on the analysis that was done during the 1980s for the Forest Plan. The EA is comprehensive in addressing the direct, indirect and CUMULATIVE effects of the proposed East Boulder Project. In considering cumulative effects, the geographic and temporal extent of the direct and indirect effects were identified to establish the scope within which the additive effects of other past, present, and reasonably foreseeable actions should be considered. Determining "how much of the Forest is to be treated" for fuels reduction into the future is un-necessary to adequately understand the potential consequences of this small fuel reduction project designed to improve public and firefighter safety along a highly traveled corridor.

In consideration of the above-mentioned literature, treatments associated with the East Boulder project are all are not at a landscape scale, no prescribed burning (Huff et al) is included and all are well within the WUI mix of homes, infrastructure and flammable fuels, which is supported by Della Salla 1995 (p. 354) and Sierra Nevada Ecosystem Project Report (p. 17). With the selection of Alternative 2, all of the treatment units are adjacent to the the heavily utilized East Boulder Road, East Boulder Mine site and powerline, or private infrastructure. There is heavy traffic and human presence associated with the mine and the area to be treated is not prime owl habitat (Hayward 1994) which would be affected by project related activities.

Comment 3-12: The EA takes a narrow simplistic view of science on fuel reduction and ignores scientific information that argues against its conclusions. The EA must be re-written to acknowledge the controversies, and remove its already-made decision biases. Graham, et al., 1999a point out that thinning can result in faster fire spread than in the unthinned stand. Consider and discuss.

Response: It is agreed that thinning a stand will result in faster rates of spread. Intuitively, opening a dense stand allows for understory vegetation to establish; understory vegetation usually consists of grasses and small forbs. However, the intensity of the burning understory or the surface fire situation, is much less than the intensity associated with a dense timber stand or crown fire. Under most surface fire conditions, four foot flame lengths and below provide for survivable situations for both the public and fire management resources. Once again, the intent of the project is not to change rates of spread or to effectively change fire behavior within the landscape. The intent of the project is to reduce fire intensities to an acceptable level along existing infrastructure to provide for both public and fire management resource safety.

Comment 3-13: Cohen and Butler (2005) made recommendations regarding fuel treatment in an interface zone in the Boulder River canyon on the Gallatin NF, following a two-day field trip. It seems that the project is a part of a wider, continuing indiscriminate fire suppression strategy, without consideration of sensible wildland fire use—elevating the odds for the type of extreme events most feared. Cohen and Butler (2005) made recommendations regarding fuel treatment in an interface zone in the Boulder River canyon on the Gallatin NF, following a two-day field trip. Cohen and Butler (2005) explain the “life safety” concept, defining it as “...about preventing fatalities during an extreme wildfire that includes all reasonable options.” The researchers focus on the need to treat fuels to establish safe areas in the event of extreme wildfire events, and treat fuels to reduce potential extreme case fire intensity along escape routes to these safe areas or well beyond the fire’s danger zone. Outside these safe areas, the escape routes, and the HIZ, these researchers indicate no need to focus on fuel reduction for life safety reasons.

Response: Very similar to the Main Boulder Project, the East Boulder Project focuses on vegetative treatments to promote human safety, by reducing fire behavior characteristics for public and fire management resources in an around existing roads and infrastructure. However, unlike the Main Boulder Project, the East Boulder Project is not adjacent to a wilderness area that would allow for naturally occurring wildfire to be used as a management tool for resource benefit. Efforts are currently being undertaken by the Forest to utilize this tool outside of the Wilderness Areas, but they have not yet been finalized. As for Cohen and Butler’s 2005

recommendations regarding the creation of safe zones to promote life safety, this project was designed to meet similar objectives and this information was taken into account during the design phase of this project.

Comment 3-14: How have past and ongoing logging and other management activities across this landscape affected fuel conditions and the “forest health” issues alleged by the EA? We know that old high grade and clearcut-type logging leads directly to vegetative conditions that are not natural and present an elevated (above natural) risk of fire. Yet nowhere does the draft EA present an intelligent cumulative effects discussion about past management in relation to its “Purpose and Need” in violation of NEPA, NFPA and the APA.

Response: Other past management activities within the project area (i.e. logging) actually increase the degree of effectiveness of the overall project design, due to the past units locations being located adjacent to existing roads and travel corridors. They were not included in any of the treatment units, due to their existing conditions being within the acceptable range of expected fire intensities and were not considered to be a threat to public or fire management resource safety.

Vegetation, Old Growth, & Insect & Disease

Comment 1-8: Is future logging of the large trees left expected? If so this is not a thinning project, but a timber management project?

Response: The agency has no short term plans to remove the large trees left after thinning. The long range plan for the East Boulder treatment units would likely include maintaining a forested canopy within all thinned units by creating a two-storied/two-aged forest. Essentially a two storied/aged forest removes some of the older overstory trees once the younger understory trees grow to sufficient size (approximately 6-8” dbh and around 30-50’ tall). These younger overstory trees are then expected to grow to sufficient size and age (approximately 10-14”dbh, around 60-80’ tall and 80-100 years of age) before they too may be harvested decades from now. Meanwhile, the younger understory trees presently in the area are expected to grow to a size that will eventually create the next overstory canopy. This pattern for generating a two storied/two aged forest is expected to continue indefinitely based on what we know today. By definition, a thinning project is considered to be an intermediate treatment in forestry terms, whereby trees of various sizes will be left but may eventually be removed depending on the overall goals for that area. Thinning is just one step of many that could be used in managing a forest over hundreds of years. Forestry is essentially the art and science of systematically and sustainably planning for forest management that will last for eons, as long as forest management is a goal of the agency/owner.

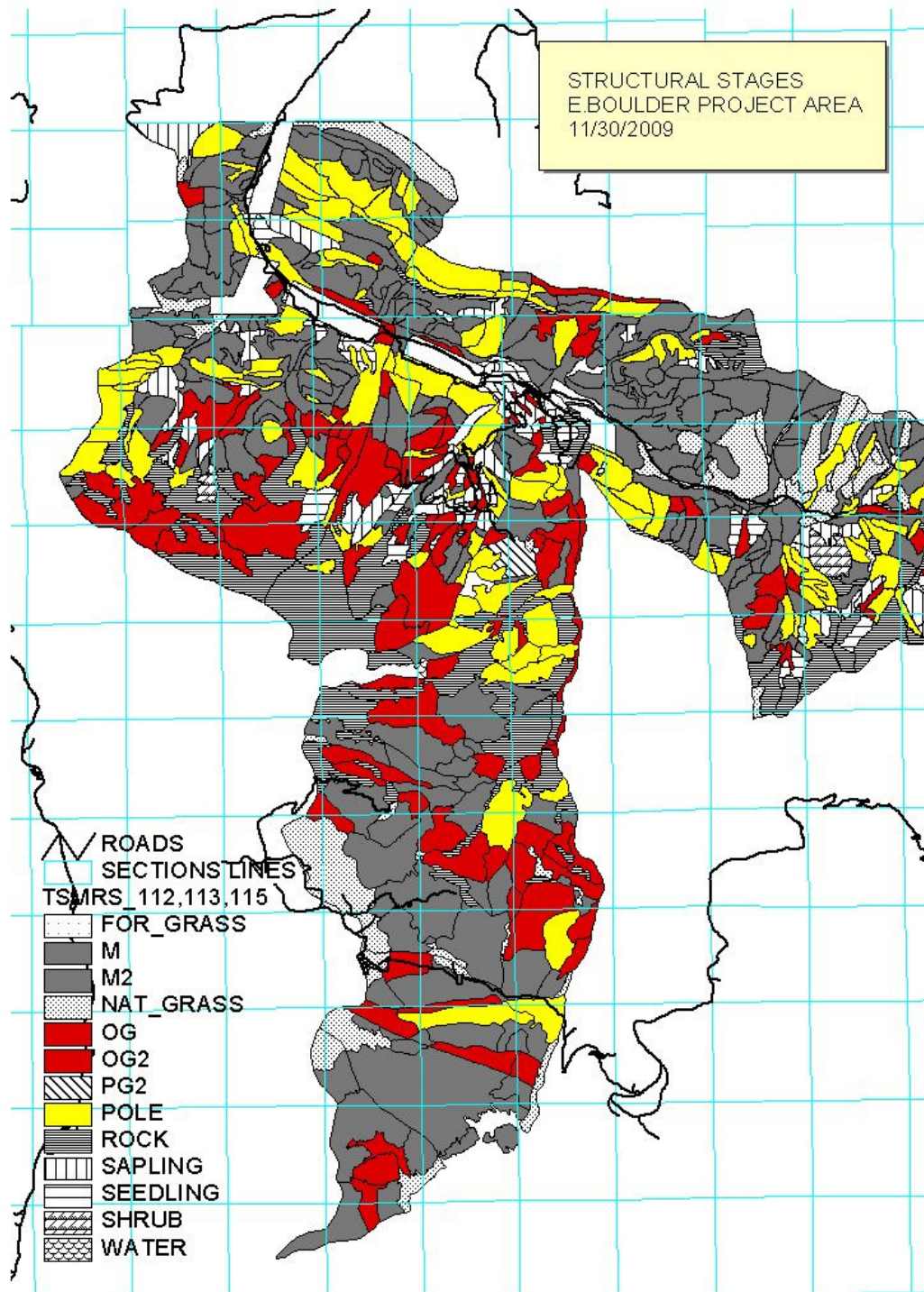
Comment 1-10: Any logging project qualifies as fuels reduction, please define how this project differs from a timber management project. What would be done differently?

Response: A logging project may or may not look similar to a fuels reduction project once the treatments are completed. What differs between a fuels reduction project and a ‘logging project’ are the objectives that each type project would be expected to accomplish once work is completed. For this fuels reduction project, the objectives include spacing between tree crowns

and removing enough of the ladder fuels along the East Boulder corridor and in areas adjacent to the mine and interspersed private lands to effectively increase time available for evacuation and provide conditions that would be safer for firefighters were a large wildfire to occur in the drainage. Objectives for a timber management project would focus on providing for productive timber stands and optimizing sustained timber growing potential.

Comment 1-34: Please identify the old growth code classification as per Green et al for all of the old growth in Compartment 112 by individual stand.

Response: Below is a map that depicts by stand what was identified as old growth forest and what was identified as something other than old growth forest.



Comment 1-35: Please define how old growth was validated.

Response: All of the proposed treatment units were visited in the field to determine whether or not these stands would meet old growth standards. Stand exams were completed in summer of 2009 for all stands associated with the project that did not have recent completed exams. Copies of those exams can be found in the Project File. Stands with recent exams were walked through to verify that information in the exam is current. Stands within the project area not scheduled for treatment were validated by either an informal ‘walk through’, or by using older stand exam data in areas that have not been affected by large disturbances such as fire, insects, windthrow or tree diseases and validating this data by means of aerial photo interpretation.

Comment 3-15: Published scientific reports indicate that climate change will be exacerbated by logging due to the loss of carbon storage. Additionally, published scientific reports indicate that climate change will lead to increased wildfire severity (including drier and warmer conditions that may render obsolete the proposed effects of the Project). The former indicates that the East Boulder Creek Project may have a significant adverse effect on the environment, and the latter undermines the central underlying purpose of the Project. Therefore, the Forest Service must candidly disclose, consider, and fully discuss the published scientific papers discussing climate change in these two contexts. At least the Forest Service should discuss the following studies:

- Depro, Brooks M., Brian C. Murray, Ralph J. Alig, and Alyssa Shanks. 2008. *Public land, timber harvests, and climate mitigation: quantifying carbon sequestration potential on U.S. public timberlands*. Forest Ecology and Management 255: 1122-1134.
- Harmon, Mark E. 2001. *Carbon sequestration in forests: addressing the scale question*. Journal of Forestry 99:4: 24-29.
- Harmon, Mark E, William K. Ferrell, and Jerry F. Franklin. 1990. *Effects of carbon storage of conversion of old-growth forest to young forests*. Science 247: 4943: 699-702
- Harmon, Mark E, and Barbara Marks. 2002. *Effects of silvicultural practices on carbon stores in Douglas-fir – western hemlock forests in the Pacific Northwest, USA: results from a simulation model*. Canadian Journal of Forest Research 32: 863-877.
- Homann, Peter S., Mark Harmon, Suzanne Remillard, and Erica A.H. Smithwick. 2005. *What the soil reveals: potential total ecosystem C stores of the Pacific Northwest region, USA*. Forest Ecology and Management 220: 270-283.
- McKenzie, Donald, Ze’ev Gedalof, David L. Peterson, and Philip Mote. 2004. *Climatic change, wildfire, and conservation*. Conservation Biology 18:4: 890 -902.

Response: After reviewing all of the above mentioned publications, it is reasonable to expect that under many harvest scenarios, carbon sequestration in forests would be less than if no harvest were to occur (either by thinning or by clearcutting). However, the amounts of carbon that can be sequestered from forests that are harvested and forests that are not harvested can be

quite variable. Such differences depend on location, forest type, time between disturbances and type of disturbances (insects, fire, harvest rotations, disease, etc.). All the above papers were written about the Pacific Northwest where disturbances from fire, disease, insects and forest types are much different than that from the Intermountain West. Certainly, one can conclude some basic tenets about forestry and carbon sequestration, but the magnitude of differences may be considerable. We, however, depart on the idea that the project as described would have ‘significant’ adverse effects on the environment and also disagree with the idea that because climate change is likely to increase amount and type of wildfires that the project in the East Boulder drainage is pointless. The main purpose and need for this project is to allow for additional fire fighter safety, improve evacuation along the main East Boulder Road and East Boulder Mine site in the event of wildfire and to protect better the structures within the main corridor along the East Boulder River if fire did occur. All of these goals will be better met with treatment than without. The goal of this project was not to better sequester carbon to address global warming issues.

Roads

Comment 1-9: There is no analysis of the construction of temporary roads into unroaded habitats adjacent to an existing IRA.

Response: As stated in the EA on pp. 3-53 and 3-54 in the Roadless/Unroaded effects analysis for the East Boulder project, “None of the alternatives being considered encroach into the Inventoried Roadless Area. Past management activities have occurred adjacent to the IRA and have influenced the characteristics of the “unroaded” resource. This includes the East Boulder Mine and power transmission line development, timber harvest and road construction. In the case of the East Boulder, any areas remaining of “unroaded” lands are not of a sufficient size or configuration to allow the protection of the inherent characteristics associated with an “unroaded” condition and therefore do not contain “unroaded” resource values.

Furthermore, the current condition of the “unroaded” portion of the proposed project area does not have the features that would make it suitable for wilderness recommendation in Forest planning. Treatment areas associated with the selected alternative (Alternative 2) are interspersed within past cutting units, private property, the East Boulder Mine and Park Electric Transmission Line. The presence of these developments dictates that the project area currently doesn’t provide apparent naturalness, remoteness, or solitude. No unique special features are known to exist in the treatment areas.”

Aquatics

Comment 3-3: We are also concerned about the proposed logging will occur within 15 feet of the East Boulder Creek and will violate the Forest Plan and the Clean Water Act since the stream is a WQLS and a TMDL as not yet been completed.

Response: This comment is incorrect. The Project File includes the full specialist report for water quality, which explains that the East Boulder River is not listed as a WQLS within the project area. The Montana DEQ 303(d) list in the 2008 Montana Integrated Water Quality Report <http://cwaic.mt.gov/Default.aspx> lists the upper segment MT43B004-143 (16.6 miles) of

the East Boulder River as all beneficial uses fully supported with no impairment. The DEQ list indicates that TMDL is not required for segment #143 from the headwaters to the National Forest boundary which includes all of the East Boulder Fuels project area. The water quality analysis in the EA (pages 3-36 through 3-39) discloses sediment modeling for each alternative and compliance with the Gallatin NF sediment guidelines and Forest Plan water quality requirements. Appendix A (BMP's) was prepared to address the Forest Plan standard (10.2, p. 11-3), which requires that Best Management Practices will be used in Forest watersheds. The Montana Forestry BMP's are included in Appendix A to insure that the BMPs are compliant with Montana DNRC forest practice requirements. The Water Quality mitigation measures (EA p. 2-23 through 2-25), which include a 15' no harvest zone next to the East Boulder River are very similar to mitigation measures in the Main Boulder Fuels Project, which have been very effective in preventing erosion or sediment into the Main Boulder River. The 15' no harvest zone is actually more restrictive than the Montana SMZ rule retention guidelines which would allow up to 50% of trees >8" dbh to be harvested in the 15' adjacent to the river and was endorsed by MT DFWP fishery biologists in a review of several Main Boulder Fuels Project harvested units on May 7, 2009. A copy of the review is available upon request and is on the GNF monitoring intranet site and in the Project File.

Comment 3-16: The Forest Service entered into a legally binding settlement agreement with Trout Unlimited over the implementation of the Gallatin Forest Plan. The settlement agreement forbids the Forest Service from logging in riparian areas. The Forest Service is permitting commercial logging in riparian areas in this Project in violation of NEPA, NFMA, the Forest Plan, the Clean Water Act and its implementing regulations, Montana water quality regulations, and the APA.

Response: This comment is incorrect. The goals, policies, and objectives for aquatic resources outlined in the Forest Plan were further defined within the agreement with the Madison-Gallatin Chapter of Trout Unlimited in 1990. The agreement did not "forbid the Forest Service from logging in riparian areas". The agreement states that "The Gallatin National Forest agrees that vegetation manipulation within riparian areas will occur only for the purpose of meeting riparian dependent resource objectives such as watershed, wildlife, or fisheries. Timber harvest activities designed to meet timber management objectives will not be scheduled in riparian areas". Project mitigation in the EA on pp. 1-13 and 2-23, 2-24, and 2-25 contain provisions for the limited amount of riparian harvesting in the East Boulder Fuels Reduction Project. These treatments are not for timber management but are designed to meet fuels reduction objectives along critical riparian reaches. The fisheries provisions in the EA on pp. 1-13, 2-24 and 2-25 provide for a minimum 15' no treatment buffer next to the East Boulder River, require: Gallatin NF fishery biologist to assist in marking riparian corridor treatments, no counting of trees within 15' as part of the SMZ retention compliance, favor leaving trees leaning toward stream channels for debris recruitment, and no riparian treatments on slopes >35% that drain directly into a stream with no floodplain filter. The Gallatin NF has developed a working relationship with the Madison-Gallatin Chapter of Trout Unlimited to review the mitigation measures for all Gallatin Fuels projects. The Trout Unlimited/Gallatin collaborative process has been useful in developing these enhanced stream protection measures. Page 3-44 describes that the East Boulder Fuels Reduction Project complies with the Trout Unlimited Settlement Agreement because riparian areas and aquatic resources will be protected.

Comment 3-18: The Forest Plan requires that aquatic habitat be managed to maintain Yellowstone cutthroat trout. Instead of managing this area to maintain or recover this critical population of cutthroat trout – by prohibiting riparian logging or closing roads for example – the Project will exacerbate the habitat degradation. Riparian logging will increase sedimentation into cutthroat habitat and the Forest Service itself recognized that any increase in stream sediment yield from the Project would “perpetuate degraded spawning conditions.”

Response: The EA on p. 3-44 summarizes the Upper Missouri Short Term Strategy for Conserving Westslope Cutthroat Trout (1999) and Cooperative Conservation Agreement for Westslope Cutthroat Trout and Yellowstone Cutthroat Trout (2007), which provide direction for cutthroat trout conservation that were carefully utilized in unit design and mitigation measures to insure protection for the Yellowstone Cutthroat Trout population in the headwaters of the East Boulder River as described in the EA on p. 3-41. The East Boulder River is considered to be a Class A stream per Gallatin NF implementation guidelines (p. 3-41), which requires maintaining fishery habitat at 90% or greater of its inherent capability, including spawning habitat fines standards, and no greater than 30% over reference sediment standards. Both Alternatives 2 and 3 are well within compliance with the Class A sediment standards per the sediment modeling summarized on pp. 3-35 through 3-37 (7.2% over natural and 8.4% over natural which are considerably below the 30% over reference standard). The EA on pp. 3-38 and 3-39 documents East Boulder Fuels Project's compliance with State of Montana Water Quality Standards and Gallatin NF direction for water quality protection because the sediment modeling indicates that sediment increases associated with the East Boulder Fuels Reduction Project are immeasurable and well within the Gallatin NF sediment standards. Pages 3-42 and 3-43 explain that the sediment yields predicted by the R1R4 sediment model would result in no effect to riparian integrity, stream channel or streambank stability, aquatic habitat, or biota. Page 3-43 also concludes that Alternatives 2 and 3 mitigation measures (outlined on pp. 1-13 and 2-23, 2-24, and 2-25), would have no effect on riparian integrity, streambank stability, or large woody debris recruitment and no measurable cumulative effects. Page 3-44 describes that the East Boulder Fuels Reduction Project complies with the Trout Unlimited Settlement Agreement because riparian areas and aquatic resources are protected. Further explanation is provided in the full aquatics report in the Project File.

Soils

Comment 3-19: Please ensure that the Project complies with regional soil quality standards. FS studies and analyses have more than amply demonstrated that logging operations and grazing significantly compact soils, resulting in persistent cumulative damage to the soils (USFS and USBLM, 1997a; USDA Forest Service 2002a; USDA Forest Service, 2002b; Grier et al., 1989). Therefore, the GNF must *measure* soil compaction and bulk density in units and properly analyze and disclose this data in order to adequately disclose existing soil conditions, including the extent of DD, and likely future soil conditions, including the extent of DD under the action alternative.

Response: This project will comply with regional soil quality standards that limit detrimental soil disturbance from past and present management activities to no more than 15% of an activity area. It is an accepted fact that certain logging activities can potentially create detrimental compaction. Actual impacts, however, depend on a number of management and soil factors.

The occurrence of detrimental soil compaction is site specific. Soil factors that affect the degree of compaction and/or the results that compaction has on site productivity include: soil texture, the amount of rock fragments in the soil, ground cover of live and dead vegetation, soil moisture levels, amount of soil organic matter, and initial bulk density.

Activity areas, i.e.: harvest units, in this project currently have very little previous, activity related, disturbance even though some units are adjacent to old clearcuts. This limits the amount of pre-activity disturbance measurements required based on guidelines provided in the Region 1 Technical Guide for soils NEPA analysis regarding detrimental soil disturbance (USDA Forest Service 2009). Post-activity disturbance will be monitored according to Regional standards in tractor harvested units. These standards allow for soil compaction to be assessed based on “observed management-induced platy structure, or by evaluating changes in bulk density, macroporosity, or penetration resistance using appropriate methods” (USDA Forest Service 1999). No requirement exists mandating the direct measurement of bulk density.

In some instances, detrimental soil compaction can reduce site productivity over an extended period of time. However, the persistence of soil compaction, like its occurrence, is dependent on site specific conditions. No ash caps were observed in this area during extensive traversing last fall through treatment units by the Soil Scientist for the Gallatin National Forest. Processes that ameliorate soil compaction over time include: freeze-thaw and wet-dry cycles, the action of plant roots, and the activity of micro and macro-invertebrates. It is a false assumption to accept that because detrimental soil compaction persists on some sites, the same can be said for all sites. Soils in the proposed treatment units are, on a whole, quite resistant to soil compaction due to coarse textures in granitic, glacial till areas or abundant rock fragments in limestone areas.

Comment 3-20: The EA fails to disclose the location, size, cumulative area, and number of landings. This is a significant defect because landings have soil and watershed impacts that are similar to roads in intensity and persistence on a per unit area basis (e.g., Beschta et al., 2004), although this, too, is inadequately disclosed in the EA.

Response: A reasonable assumption would be that all tractor and skyline harvested units will have approximately one landing per 20 acres and that landings will have a maximum size of 1/2 acre. This results in predicted levels of soil disturbance due to landings of approximately 2.5 percent in tractor and skyline harvested units.

It is a true statement that timber harvesting disturbances at landings can have impacts similar to those of temporary roads. For this reason, temporary roads and landings are targeted in this project for post-harvest remediation. The statement that “soil productivity on landings is effectively eliminated” is completely false with regard to landings where post-harvest remediation occurs.

Results from mine land reclamation studies elsewhere and road decommissioning work on the Gallatin National Forest contradict comments cited by the Alliance for the Wild Rockies relative to the inability to restore soil productivity on landings. Although the Alliance for the Wild Rockies has provided a number of literature citations with their comments, they have not provided citations for the references used to document irretrievable losses in soil productivity. It is hard to judge the relevance of these specific comments to conditions on the Gallatin National Forest without the overall context.

Comment 3-21: The EA fails to adequately analyze and disclose the amount of burning that is expected to result in DD or TSRC. A considerable amount of areas burned post-logging may have suffered high severity burns at the soil surface, which plainly causes DD. However, the EA provides no quantitative disclosure of this amount that has been, or will be, caused by post-logging burning in the project area or activity areas.

Response: The EA states that small diameter material from thinning hand treatment units will be hand piled and burned. The area of hand piles burned would be less than two percent at a maximum and the area of severe burning (top layer of mineral soil exposed and visibly altered) less than that. Areas burned will be small isolated patches. Little or no prior activity disturbance exists in the hand treatment units so the level of post-activity detrimental soil disturbance will be well below the 15% DSD threshold. Feathering of the litter layer from adjacent unburned portions of the stand will help blend these small burn areas into the surrounding area and enhance recovery through the addition of organic materials.

A severe wildfire burning in the heavy fuels of these areas would create a much higher probability of severe burning over substantially larger and more continuous areas.

Mechanical piling and burning large piles of slash at landings will create detrimental soil disturbance on the portion of the landing beneath the burn pile. The proportion of area detrimentally disturbed will be well within DSD standards based on landings overall covering only 2.5% of the area in these units. Only a portion of that area will be burned. The resulting area of detrimental soil disturbance associated with landings has been calculated in the Soil Specialist's report for this project which is available to the public. As per above, a severe wildfire burning in the heavy fuels of these areas would create a much higher probability of severe burning over substantially larger and more continuous areas within these units and adjacent areas.

Comment 3-22: The EA and Forest Plan also fail to adequately address the long-term reduction of coarse woody debris (CWD) in activity areas, a condition that would be exacerbated by the logging activities. Although not disclosed in the EA, the USFS's own ICBEMP assessment concluded that the loss of CWD coupled with the impacts of logging have persistent and serious impacts on soils (USFS and USBLM, 1997a; b). The EA's analysis of soil impacts inadequately analyzes the effects of tree removal on short- and long-term CWD and its effects on soil productivity, based on a thorough analysis of the best available scientific information on the issue.

Response: The exclusion of fire from the areas to be treated has resulted in the build-up of fuels, including coarse woody debris. Walking through some of the stands can be extremely difficult because of the abundance of these materials, especially in lodgepole stands where logs are piled in jack-straw fashion one on top of another.

The proposed harvest treatments are all partial cuts. Down, woody fuels to be removed will concentrate on small diameter fuels (see Table 1-1 in the EA for details). In addition, soil best management practices for the East Boulder Fuels Project include leaving 10-15 tons per acre (where available) of coarse woody debris (3 inch diameter or larger) scattered on the ground in treatment units that occur mainly on coarse-textured, glacial till derived soils. Site specific data relating the amount of downed coarse woody debris needed in forest stands to sustained soil productivity is severely lacking for western forests. In the absence of hard data, it becomes somewhat of a judgment call as to how much downed coarse woody material is enough. Early work by Harvey and others (1987) provides a relatively conservative, generic recommendation

for leaving behind 10 to 15 tons per acre in the Northern Rocky Mountains. More productive forest stands would likely require more coarse woody debris than low productivity stands. The combination of standing timber that will be retained in harvested units of the East Boulder Fuels Project along with recommendations for leaving coarse woody debris on the ground will ensure that coarse woody debris levels in these stands stay within the levels recommended by Harvey et.al. (1987).

Comment 3-23: In interpreting the requirements of NEPA, the federal courts have evaluated the adequacy of mitigation measures that EISs and EAs rely upon. Relying upon inadequate mitigation measures to protect soils fails to meet this judicially specified test of compliance with NEPA regulations.

Response: Conservative estimates of remediation effectiveness from the combined effects of erosion control, ripping, recontouring, slashing, and seeding of temporary roads and those portions of landings not under the burn pile are based on the expected reduction of detrimental soil disturbance as it is defined in the Region 1 Supplement 2500-99-1 (USDA Forest Service 1999). These are predicted levels based on field observations from last year in previously harvested areas and professional judgment. Soil monitoring at 2 years and 5 years after the fuels treatments are completed will determine actual remediation results and will refine future predictions.

Even without remediation, however, none of the proposed treatment units in the East Boulder Fuels project are predicted to exceed the 15% detrimental soil disturbance standard for Region 1.

Comment 3-25: Nowhere does the EA disclose existing amounts of DD or TSRC in past “activity areas” despite the history of heavy logging. Cumulative effects of past compaction, soil displacement, erosion, and management burning are treated as irrelevant.

Response: Field observations of existing detrimental soil disturbance in adjacent past harvest areas, although not yet quantified, were less than expected given the heavy handed approach to timber harvesting and clearcutting that occurred in these stands in the 1980s and early 1990s. There is also no evidence of reduced productivity in the young lodgepole pine stands that are filling in these sites. Evidence is also lacking of any substantial soil erosion contributing to the movement of sediment off site in the old clearcuts.

Past timber harvest areas do not overlap the proposed treatment units in the East Boulder Fuels project. The Region 1 Technical Guide regarding detrimental soil disturbance (USDA Forest Service 2009) states that: “Because productivity effects are spatially static and productivity in one location does not influence productivity in another location, it is appropriate to spatially limit the cumulative effects analysis to the activity area.” An exception to this would be if soil erosion or deposition from one area was negatively impacting another. Treatment units for the East Boulder Fuels Project are the proposed harvest units. These do not overlap previously harvested areas. Thus, existing effects of past harvests outside of the proposed treatment units are irrelevant to the cumulative effects analysis according to criteria presented in the Region 1 Technical Guide.

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